

# U.S. NAVY MEDICINE

November 1977



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# U.S. NAVY MEDICINE

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**COVER:** At NRMDC San Diego, LCDR Timothy Lind, MC, USNR (left) repositions a patient in the computerized axial tomography scanner. Observing is CDR Frederic Gerber, MC, USN. Earlier this year, NRMDC San Diego became the first military medical facility to install a CAT scanner (see story beginning page 2). Photo by HM1 Les Keyser.

# From the Surgeon General

## SAC IX: What It Means to Us

THIS ISSUE OF **U.S. Navy Medicine** contains remarks made at the first plenary session of the ninth annual Specialties Advisory Committee meeting—SAC IX—held in September in Washington. The principal purpose of this conference is to permit our training program directors to review applicants for graduate medical education billets and to recommend candidates to the Surgeon General. Final selection and approval of candidates is the Surgeon General's responsibility.

In addition to the nominations for GME positions, the conference offers us an opportunity to disseminate policy decisions and to exchange ideas related to educational interests.

I want to reiterate my firm support of our graduate professional education programs. These are the activities that most directly reflect the health of our system. I want these endeavors to be of the highest quality. If a program cannot meet the necessary standards, it will be closed.

It is clear to me that with the advent of the All Volunteer Force, we will have to train our specialists and subspecialists ourselves. Our recruiting efforts, while improving, are not meeting our needs in several vital areas. We will have to make full use of all avenues available to us.

Our efforts to train specialists and subspecialists are complicated by


the parallel need to man fully those billets that support our operating forces. The restructuring of our GME-1 year is designed to meet that requirement at a time least disruptive to the professional development of our young physicians. I am confident that such a study-work-study approach produces a more versatile professional, while at the same time exposing the junior medical officer to the operating Navy. Such exposure is in the best interests of the Navy and the Navy Medical Department.

The degree to which we can reconcile these competitive imperatives will determine our future. With this introductory statement as background, I ask you to read with a receptive mind remarks made during the first plenary session of SAC IX (the second plenary session will be published next month). Some of our problems are described here, and some solutions are proposed. Since we cannot have the best of all possible worlds, we must make the best of the world we have.

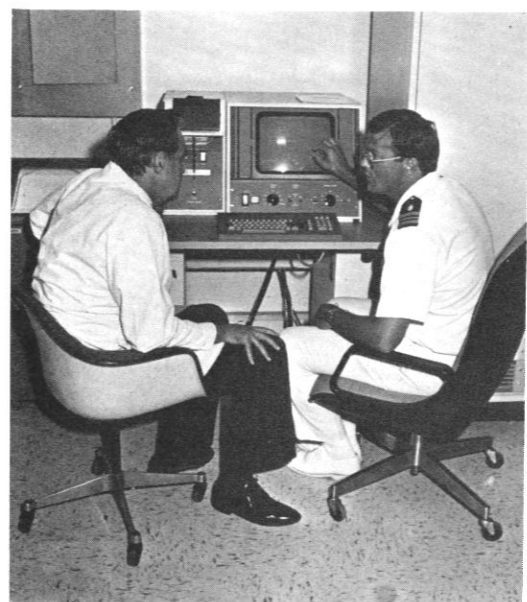
Our training programs are our life's blood. I pledge to you my determination to continue these programs at the highest possible level of quality. I know that I can count on each of you to assist me in that effort.



VADM Arentzen discusses medical matters in USS Orion sick bay with HMCS R.M. Johnson (left), CAPT W.W. McDermott (MC), and LT A.T. Brillhart (MC).

  
W.P. ARENTZEN  
Vice Admiral, Medical Corps  
United States Navy





Drs. Schorn & Lind discuss CAT scan



Scanner equipment (L-R): console, two-part computer, and magnetic tape system

## Department Rounds

NRMC San Diego

### CAT Scanner Comes Aboard

It's an advance as significant and sophisticated as the switch from radio to television or from propeller-driven planes to jets: the new EMI\* computerized axial tomography 5005 full-body scanner, now being used in patient care at Naval Regional Medical Center, San Diego.

"The CAT scanner is a great advance," says CDR Frederic Gerber (MC), chief of radiology at the medical center. "With it, we can evaluate anatomic and tissue detail we cannot visualize with any other technique."

Using the new scanner, physicians at NRMC San Diego will be able to make fast, accurate diagnoses without subjecting patients to the risks that accompany some other radiological examinations. "Patients can be spared the risks involved with such tests as pneumoencephalograms and arterio-

grams," says CAPT Victor G. Schorn (MC), chief of neurosurgery. "Also, they will be exposed to less radiation than with a regular X-ray machine because the scanner takes less film and less time to make a complete picture."

**Sharp pictures.** NRMC San Diego is the first military medical facility in the United States to install a CAT scanner. Since the scanner was delivered to San Diego last May, the Medical Department has been given permission to purchase units for the National Naval Medical Center in Bethesda and NRMC Portsmouth, Va.

The CAT scanner combines an X-ray machine with a computer to produce sharp, detailed pictures of soft tissue. CDR Gerber explains: "The computerized tomography technique uses a computer to mathematically construct two-dimensional, transverse body sections from measurements of X-ray ab-

sorption recorded as the X-ray machine is rotated about the part of the body being studied."

According to Dr. Gerber, the technology for transverse tomography first became available around 1973, and the scanners themselves appeared on the commercial market a year later.

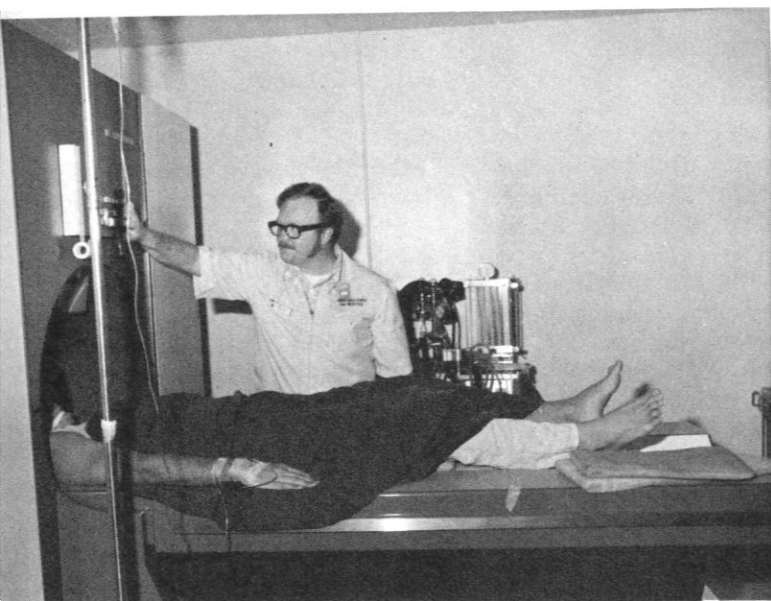
While undergoing a body scan, patients lie in a grooved table with the part of their body to be scanned positioned in the large opening in the front of the scanner. On one side of the opening is an X-ray tube, on the other a detector. The X-ray tube and detector both rotate about the part of the body under study. Information gained is processed by a computer and transmitted to a viewing console where it appears on a screen in the form of photographs. A series of about 16 such photographs is obtained on each patient.

**Mystery.** CAPT Schorn sees the scanner as a significant aid in diagnosing head injuries and following postoperative patients for such complications as intracranial blood clots. And in unusual situations where the physician can find no explanation for a patient's symptoms, the scanner may be able to solve the mystery.

The medical center has estab-

\*EMI Medical Inc., Northbrook, Ill.

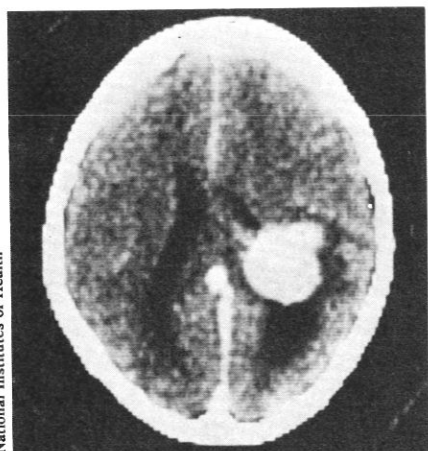




Civilian technician Harry Lough prepares patient for head scan



Information is transmitted to viewing screen



CAT scan of brain: the round, white area in right half of brain is benign tumor



CAT scan reveals intracranial contents

lished a review committee to evaluate requests for body scans. "Studies that are deemed appropriate to diagnose a patient's medical problem will be scheduled by the committee," Dr. Gerber reports. "In that way, we can limit body scanning to patients for whom a diagnosis cannot be made by other techniques."

Certain parts of the body, such as the liver and pancreas, are extremely difficult to see clearly using other radiological methods. Dr. Gerber predicts that the body scan will become the standard exam for complications in those areas.

Another possible use for the scanner is in radiation therapy planning. "Scanning provides a very precise definition of tumor volume," Dr. Gerber says. "What the scanner sees has always been there, but couldn't be characterized by other methods."

Use of the CAT scanner for head scans at NRMCSan Diego will be supervised by neuroradiologist LCDR Timothy Lind (MC). Dr. Lind has no doubts that the scanner's cost is justified by the tremendous demand for service. "We've been spending \$200,000 a year to send patients to other hospitals for this test," he points out.

**Reduced costs.** According to CDR Gerber, CAT scanning permits examinations of many patients on an outpatient basis who otherwise would have to be admitted to the hospital for tests. Because of this advantage and the speed with which these exams can be done on the CAT scanner, hospital administrative costs can be reduced, Dr. Gerber says.

By the end of the year, eight technicians at NRMCSan Diego are expected to be fully trained to operate the scanner. These technicians will work in Special Studies under the direction of Dr. Lind.

Dr. Gerber estimates that between 3,000 and 4,000 patients will be examined during the scanner's first year of operation. Looking ahead, he predicts scans for about 5,000 patients per year, with technicians operating the scanner five days a week, 16 hours a day. Emergency patients will be scanned at any hour.

"This technique is going to change the face of medicine in many ways," Dr. Gerber says. "The Medical Department is very fortunate to have this technique available now."

—Story contributed by June Wyman and Kori Calvert. Photos by HM1 Les Keyser.

# BUMED's New Fall Line-Up

From duty stations on both coasts and in Hawaii, Navy medical and dental officers have moved to Washington to assume top positions at the Bureau of Medicine and Surgery.

Heading the list of BUMED newcomers is RADM **Robert G.W. Williams, Jr.** (MC), who succeeds RADM Paul Kaufman (MC), now retired from active duty, as Deputy Surgeon General and assistant chief of the Bureau. RADM Williams had been fleet surgeon, Commander in Chief, U.S. Pacific Fleet, and staff medical officer, Commander in Chief, Pacific since 1975.

Dr. Williams was born 10 June 1921 in Woodbury, N.J. He received his M.D. degree in 1946 from Hahnemann Medical College in

Annapolis, leaving in 1964 to assume the same posts at Naval Hospital Newport, R.I. Subsequently he was director of personnel in the Office of the Assistant Secretary of Defense (Health and Environment). He was named commanding officer of Naval Hospital Beaufort, S.C., in 1970 and of Naval Regional Medical Center Newport in 1972.

Dr. Williams became commanding officer of the National Naval Medical Center in 1973. Shortly afterwards the naval hospital at NNMCC was disestablished as a separate command, and the hospital and all regional facilities came under RADM Williams' command.

RADM Williams holds the Navy and Marine Corps Medal, Meritorious Service Medal with gold star, Joint Service Commendation Medal, American Campaign Medal, World War II Victory Medal, National Defense Service Medal with bronze star, Korean Service Medal, and United Nations Service Medal.

**Operational Medicine.** New assistant chief for operational medical support (BUMED Code 5) is RADM **Henry A. Sparks** (MC). He relieves RADM Robert C. Laning (MC), who has retired.

RADM Sparks was born in Woodland, Calif., on 22 Nov 1924. He was appointed lieutenant (junior grade) in the Medical Corps of the U.S. Naval Reserve in June 1948 while attending the University of Southern California Medical School at Los Angeles. After receiving his M.D. degree in 1949, he served his internship at Naval Hospital Long Beach, and remained there until March 1950 as a resident in internal medicine. Subsequent assignments included U.S. Fleet Activities, Yokosuka, Japan; Mobile Surgical Team 1; and the National Naval Medical Center.

Dr. Sparks was commanding officer of Naval Medical Research Unit

No. 3 in Cairo from 1970 to 1974. He had two tours at Oakland, most recently as commanding officer of the naval regional medical center.

RADM Sparks wears the Legion of Merit, Navy Unit Commendation Ribbon, American Campaign Medal, World War II Victory Medal, Navy Occupation Service Medal with Asia Clasp, National Defense Service Medal, Korean Service Medal and United Nations Service Medal.

**Inspector.** Another new arrival at BUMED is RADM **Roger F. Milnes** (MC), named Inspector General, Medical (BUMED Code 007). His naval career was reviewed in *U.S. Navy Medicine* in May of this year after he was selected for rear admiral while serving as commanding officer of NRMC Camp Pendleton, Calif.

Dr. Milnes succeeds RADM Walter Lonergan (MC), now commanding officer of NRMC Oakland.

**Education.** Two medical officers already assigned in the Washington, D.C., area have been tapped to oversee Medical Department education and training efforts.

CAPT **Stephen Barchet** (MC), formerly associate dean of the School of Medicine, Uniformed Services University of the Health Sciences (USUHS), is the new commanding officer of the Naval Health Sciences Education and Training Command, and special assistant for Medical Department education and training (BUMED Code 0011). He succeeds RADM William J. Cox (MC), who last January assumed the duties of assistant chief for human resources and professional operations (BUMED Code 3).

After attending Brown University in Providence, R.I., CAPT Barchet attended medical school under Navy sponsorship and received his M.D. degree from the University of Maryland in 1956. His graduate medical education included general surgery at Naval Hospital Portsmouth, Va., obstetrics and gynecology at Naval Hospital Boston, and a pathology



RADM Sparks (left); RADM Williams

Philadelphia and was an intern at Naval Hospital Philadelphia. After a year and a half as junior medical officer in USS *Macon*, he returned to Naval Hospital Philadelphia for an internal medicine residency. Subsequent assignments included U.S. Naval Hospital Yokosuka, Japan, the National Naval Medical Center, and the Division of Physical Qualifications and Medical Records (Physical Review Council) at BUMED.

In 1959 Dr. Williams became chief of medicine and later also executive officer at Naval Hospital

fellowship at Harvard's Hospital for Women in Brookline, Mass. He later served as an obstetrician-gynecologist at Navy facilities in Naples, Italy, Portsmouth, N.H., Beaufort, S.C., and Bremerton, Wash. From 1966 to 1967 he was commander of MILPHAP Team #2, Quang Nam Province, South Vietnam.

Dr. Barchet previously joined BUMED in 1973 to serve first as assistant head and subsequently head of the Training Branch. In 1975 he became deputy special assistant for Medical Department education and training, and shortly thereafter served as BUMED's physician representative on the Chief of Naval Operations Select Committee to Review Navy Health Care.

In 1976 Dr. Barchet was appointed associate dean of the USUHS School of Medicine and

every aspect of Navy Medical Department education and training. He has additional duty to the Chief of Naval Operations to participate in the CNO Training and Education Advisory Council and is the BUMED contact point for all Medical Department education and training.

With the reorganization of the Human Goals Branch (Code 313) last August, CAPT Kreider was appointed BUMED psychiatry consultant for assignment of psychiatrists and professional matters relating to Navy psychiatry; he also serves as psychiatry adviser to the new Human Resources Management Division (Code 35).

A native of Quincy, Ill., Dr. Kreider was born 18 Sept 1931. He began his naval career in 1953 as a naval aviation cadet and served as a naval aviator with Attack Squadrons Eighty-Six and Forty-Three until 1960. From 1961 to 1964 he was a

pital, First Marine Division, Danang. From 1970 to 1973, he was head of the mental hygiene unit and senior assistant medical officer at the U.S. Naval Academy. He has been assigned to BUMED since 1973, serving as assistant head of the Psychiatry Branch and the Human Goals Branch prior to his present assignment.

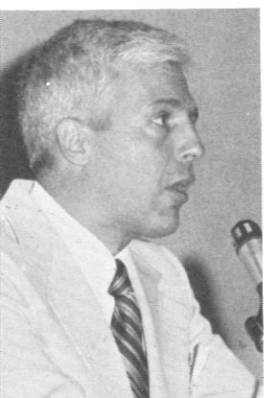
CAPT Kreider is clinical assistant professor of psychiatry at the USUHS and serves on various University committees and the physicians' section of the Association of Military Surgeons of the United States. He is a member of the National Advisory Mental Health Council and the American Psychiatric Association Committee on Federal Health Services.

**R&D.** New commanding officer of the Naval Medical Research and Development Command is CAPT **Joseph D. Bloom** (MC), also named special assistant for medical research and development (BUMED Code 0012). He relieves CAPT Charles E. Brodine (MC), who has retired.

Dr. Bloom is a native of Pittsburgh, born 6 July 1933. He received his B.S. and M.D. degrees from the University of Pittsburgh, and in 1960 received an M.S. degree in radiation biology from the University of Rochester. He was an internal medicine resident at Naval Hospital Oakland from 1964 to 1967, and spent the next year at Naval Hospital San Diego in postgraduate pulmonary disease training.

Early in his naval career Dr. Bloom attended the medical officers' course at Navy Deep Sea Divers' School in Washington, D.C., as well as Submarine School, New London, Conn. He then served as medical officer at the Atomic Energy Commission, Idaho Falls; at Mare Island Naval Shipyard during construction of USS *Permit* (SSN-594); and with Submarine Squadron FIVE, San Diego.

From 1968 to 1972 he was officer in charge and director of the Naval Submarine Medical Research Lab-



(Left to right) CAPT Bloom, CAPT Barchet, RADM Milnes

executive secretary of the USUHS Board of Regents—positions he held until assuming his new command and BUMED post.

Certified by the American Board of Obstetrics and Gynecology, he holds an academic appointment at the Boston University School of Medicine.

Working closely with CAPT Barchet is the new deputy special assistant for Medical Department education and training, CAPT **Stanley J. Kreider** (MC), who relieves CAPT Joseph S. Cassells (MC). Dr. Kreider is concerned with virtually

member of Reserve Fighter Squadron 725 while attending the University of Chicago School of Medicine. He participated in the Navy Senior Medical Student Program, receiving his M.D. degree in 1965. He subsequently completed a rotating internship at Naval Hospital Great Lakes and a residency in psychiatry at Naval Hospital Philadelphia.

In 1969 Dr. Kreider was assigned as chief of psychiatry at Naval Support Activity Hospital, Danang, Republic of Vietnam, later becoming Division psychiatrist and chief of psychiatry at the Division Hos-



oratory, New London, Conn. He then returned to San Diego where he served as assistant chairman of the medical center's Department of Medicine and later chairman of the Department of Internal Medicine. He left the latter position to assume his new command.

Board certified in internal medicine and pulmonary disease, Dr. Bloom is associate clinical professor of medicine at the School of Medicine, University of California, San Diego.

**Reserve.** New director of the Naval Reserve Division (BUMED Code 36) is **CAPT John N. Rizzi** (MC). He relieves **CAPT Norman V. Cooley, Jr.** (MC), now commanding officer of U.S. Naval Regional Medical Center Naples.

**CAPT Rizzi** received his undergraduate degree at Georgetown University, Washington, D.C., in

Medical Center, San Diego, the position he held before coming to BUMED.

He is a diplomate of the American Board of Obstetrics and Gynecology, and a fellow of the American College of Obstetrics and Gynecology and the American College of Surgeons.

**Dental Corps.** **RADM Paul E. Farrell** (DC) is the new chief, Navy Dental Corps, assistant chief for dentistry, and chief, Dental Division (BUMED Code 6), taking over from **RADM Robert W. Elliott, Jr.** (DC), who has retired.

**Dr. Farrell** served as a pharmacist's mate 3/c on active duty in the Navy from 1944 to 1946. He was commissioned an ensign in the Naval Reserve while at the University of Pennsylvania Dental School in Philadelphia, and participated in the Navy Senior Dental Student Program. His naval career includes tours at the Naval Gun Factory, Washington, D.C.; U.S. Naval Academy; Naval Air Station Port Lyautey, Morocco; Naval Dental School, Bethesda; in *USS Howard W. Gilmore* and *USS New Jersey*; and as director of clinical services, Naval Regional Dental Clinic, Norfolk. Previously at BUMED he has been head of the Reserve Branch Dental Division, and most recently Inspector General, Dental.

**Dr. Farrell** is a Fellow of the American College of Dentists and the International College of Dentists and a member of the American Dental Association, the American Academy of Gold Foil Operators, the Academy of Operative Dentistry, and Omicron Kappa Upsilon honorary dental fraternity. He holds the Navy Commendation Medal with Combat V, Combat Action Ribbon, Naval Reserve Medal, American Campaign Medal, World War II Victory Medal, Navy Occupation Service Medal with Europe Clasp, National Defense Service Medal with one bronze star, Vietnam Service Medal with bronze star, and Republic of Vietnam Medal with device.

Replacing **Dr. Farrell** as Inspector General, Dental (BUMED Code 61A) is **RADM Julian J. Thomas, Jr.** (DC), former commanding officer of Naval Regional Dental Center, Parris Island, S.C. A brief report of **Dr. Thomas'** naval career was published in *U.S. Navy Medicine* in May 1977 following his selection for rear admiral.

**Force Master Chief.** Master Chief Hospital Corpsman **Harry A. Olszak** is the new Master Chief Petty Officer of the Force for the Navy Medical Department. He relieves **HMCM Horace S. Anderson**, now assigned to the National Naval Medical Center.

Formerly Master Chief Petty Officer of the Command at **NRMC Portsmouth, Va.**, **HMCM Olszak** has more than 25 years of naval service. He has had sea duty in *USS Haven* (AH-12), *USS Luzon* (ARG-



**RADM Farrell (left); RADM Thomas**



**CAPT Rizzi (left); HMCM Olszak**

1949, and his medical degree at New York Medical College, N.Y.C., in 1954. He was one of the first officers to receive residency and internship training under the auspices of the Berry Plan.

**Dr. Rizzi** came on active duty in 1958, subsequently serving at Naval Hospital Newport, R.I., and Naval Hospital, St. Albans, N.Y. After these two tours, he left the Navy for private practice.

**Dr. Rizzi** returned to active duty in 1972 to serve as a staff obstetrician-gynecologist at Naval Regional

2), *USS Catapult* (YV-1), and *USS Shenandoah* (AD-26), and has served at the naval hospital and naval dispensary Bremerton, Wash.; Naval Training Center and Medical Research Unit No. 4 in Great Lakes; Preventive Medicine Unit No. 6, Pearl Harbor; and Naval Air Station, Norfolk, Va.

**HMCM Olszak** is a graduate of Roosevelt University, Chicago. He holds the Presidential Unit Citation, Good Conduct Medal with six stars, and National Defense Service Medal with one star.

## Special Report

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# The Surgeon General's 9th Annual Specialties Advisory Conference and Committees' Meeting

This conference was held 12-15 Sept 1977 in Arlington, Va. The following report of this annual session represents an edited (sometimes paraphrased or abbreviated) version of the remarks and presentations of specified individuals. Their comments do not necessarily reflect official views of the Navy Department or the naval service at large.—Ed.

FIRST PLENARY SESSION  
13 September 1977

## Perspectives of the Navy Medical Department

VADM W.P. Arentzen, MC, USN  
Surgeon General of the Navy

It is with a great deal of pleasure that I welcome you to this, the ninth annual Specialties Advisory Conference, and my second as Surgeon General. With just over one year under my belt now, I can say with real feeling, "How I envy you!" You are where the action is, where the genuine enjoyment of Navy medicine is to be found. While as a hospital commanding officer I had less responsibility, perhaps, than I have now, at the same time I had more control over what transpired. Responsibility without authority—a classical dilemma, frustrating in its banality, potentially devastating in its effects.

And what an eventful year it has been! Last year I addressed you as a novice in the bureaucracy, eager and naive. This year I remain eager, but more realistic. I remain optimistic, even idealistic, but practical. I have not learned to accept, nor shall I, expediency as an end in itself. We have been beset on all sides by faceless challengers, challengers without responsibility. When a decision made today has the predicted result, where is the iconoclast who directed the action? Who holds him accountable for the harm done? We function in a world of cynics—cynics in the Oscar Wilde sense: someone who knows the price of everything and the value of nothing.

But they don't reckon with the Navy Medical Department. If there is a theme to my remarks, it is this: The system will accommodate anybody's reasonable request. I know that to be true in my own career and I have observed it in others. The key word is *reasonable*.

We have adopted the wrong tack. We are to some degree the creators of our own troubles. We've been spoiled in the past. We've been exempted from many of the constraints our line confreres have always had. Billets and bodies—what difference if they never matched? What was the requirement to which we trained? Whatever we said it was! And we got away with it.

But no more. Our critics are getting ever more sophisticated. Their questions aren't bad, our *answers* are. Emotionalism without data to back it up won't carry the freight any more.

Our workload statistics don't reflect what we do. We collect elaborate data and that data does us in. If patient care is more sophisticated technologically and requires more money and personnel, why can't we document it? And if these advances do require more resources, why do we persist in justifying their acquisition on the personnel savings to be accomplished?

If we are moving toward ambulatory and preventive medical services, why don't we devise a composite work unit that properly reflects that? A successful practice aboard ship could be zero sick call, yet none of our reporting statistics reflects the work required to achieve that—sanitation inspections, first aid lectures, immunization procedures, etc. Ladies and gentlemen, we can no longer be successful in our illogic.

Let's get our act together and tell our story straight!

Accurate statistics are only part of the picture, though. They will help us in the budget arena and in some small degree with our personnel problem. But only to a small degree. Recruitment and retention of physicians is far and away the biggest problem facing us today. Why don't they stay? You know the reasons as well as I. Money is one reason, but money is far from the only reason.

Our facilities are deteriorating more rapidly than we can replace or renovate them. We currently have at the Bureau a backlog of over 53 million dollars in needed

renovations. Some of our physicians don't even have offices where they can talk to patients.

Equipment purchases always lag behind our civilian counterparts. We have recently gotten our first CAT scanner at San Diego and have approval for additional scanners at Portsmouth and Bethesda. What a fight that was! The state of the art is the state of the art. There is no way to change that. We *must* stay current.

Our shortages in ancillary personnel are subjects of messages across my desk on a daily basis, and whenever I visit a facility. We are attempting to get Hospital Corps ratings manned at 100%, but that will still represent a deficit below our real needs unless something can be done about their maldistribution. Does the Second Marine Division need 31 operating room technicians in peacetime? I think not. Especially when we are closing operating rooms because of the shortage of personnel. We are trying to correct these imbalances, but it takes time and the cooperation of the line: most Hospital Corps billets are *not* controlled by the Surgeon General.

Inadequacy in funding for continuing medical education is another major bone of contention for our physicians, *and* nurses, *and* dentists, *and* Medical Service Corps officers, *and* some technical ratings in the Hospital Corps. This past year, because of budget cuts, travel ceilings, inflation, etc., we were able to send 40% fewer physicians to conferences. We have requested additional funds through the budget cycle to address this discrepancy.

Uncertainties in the special pay provisions for physicians and dentists make rational planning virtually impossible. Isolated duty stations and possible family separation, particularly for unnecessary billets, are another disincentive I frequently hear. The perceived erosion of benefits as related to health care, commissaries, exchanges, etc., all play their part.

Abuse by patients is an unfortunate and increasing problem for our already greatly taxed system. I have directed that patient education programs be established at all our facilities, but wherever I visit I find them to be largely existent on paper. A hospital instruction never educated or motivated a patient. We must emphasize to our patients that they have a responsibility in their own health care. This can only be achieved through an adequate educational program. Patients seek help when their anxiety level exceeds their ability to tolerate it. We must raise those tolerance levels wherever we can. We must enlist the help of our line counterparts in this effort. It is their system too, and they have a stake in making it work well.

These are only a few of the many frequently mentioned reasons physicians give me for leaving. At bottom, it is a matter of professional job satisfaction. Many positions are open to our Navy physicians—professionally rewarding positions; they don't have to put up with the uncertainties and the frustrations, and they are not.

You, in this audience, are the key to turning that around. As a first step we must stop apologizing for being in the military. Hold your heads high. You *are* good. You do practice good medicine. Our physicians, retired or resigned, have no trouble stepping into successful careers; since that is true, where is the stigma in military medicine? I suggest to you that it is self-imposed and self-perpetuated. If I can paraphrase Dr. Deaver, "A military doctor should be a medical man and something more, not something less." I believe that; I hope you do.

This attitudinal change can be of more benefit to our environment than almost anything else. It will most certainly offer role models to our young physicians which are greatly different from what they too often see today.

We must revise our approach to our scholarship students. For whatever reason they entered into the program, we must assume, all other considerations aside, that they were at least attracted to the Navy. Treat them from the first as career officers. They respond positively to that approach. In the course of a 20- or 30-year career it little matters whether you become a neurosurgeon in year 5 or year 7; what matters is that you have the opportunity to become a neurosurgeon and that you don't pay a penalty for the difference.

The operational tour upon completion of the GME-1\* for most physicians is designed to meet a Navy need at a time least disruptive to professional development, to count toward payback of the initial obligation, and to assure, upon completion of further specialty training, utilization in that specialty. Such a system allows for career planning. Such a system exposes our young physicians to the Navy. Such a system will *not* be perfect. There will always be those individuals who are not qualified to enter further GME training; there will be those specialties where the numbers applying will exceed the spaces available. That is true now. Perfect justice is not achievable on this earth; we must bend our efforts to minimize injustice.

Our training programs must be first-rate. Unless a program can remain viable, it will be closed. There can be no doubt that in the future we will have to train our specialists. We have, during this past year, gone through a wrenching billet/body exercise for staff and GME. We had to do that to see just where we were. I am less concerned now with the absolute numbers in training so long as those numbers are based on valid requirements not met by other means. The expansion capability of our training program is dependent upon the availability of teaching staff, patient population, and support personnel; it is, therefore, limited. It is my desire that within those constraints the maximum opportunity for training be made available to our physicians. The doctors we trained have been the doctors we retained.

\*First year of graduate medical education



We must resist every effort to reduce our patient mix. Without dependents and retired personnel, our training cannot be accomplished. To lose that segment of our beneficiary population is to lose Navy medicine as we know it.

Our training programs have never had to take a back seat to anyone. I do not propose that they will do so now. Communicate with your departments. Encourage innovative thought. Identify good teachers and lend your efforts to retain them. Have the courage to be new.

Good as our training programs must be, good as I am determined they shall be, there is more we must do.

Why did we join the Navy and why have we stayed? Wasn't it at least a little bit the romance of the sea? Didn't we all perk up when we watched the "Tall Ships?" And didn't we watch—thousands of us!

And there is patriotism, too. Let's never forget that.

I am intellectually a physician; I am emotionally a Navy man. That's what we want to talk about. Look at what the Navy can offer a young physician that he can get nowhere else: communication with each other by means of satellite, communication with other species, disease surveillance by satellite monitor. Man will someday live in space. Man will someday live under the sea. The Navy will be there. There, on the frontier!

I am optimistic about our future. Sure, we've had some bad times, but they're beginning to get better.

Recruiting is improving. We expect to come very close to our goal this year. Our scholarship program is beginning to pay off. This year we had over 800 applicants for the 284 positions available, and all top quality. We have requested the additional funds necessary to accept another 111 students this year. That will bring us up to our Congressional authorization of 1,575 participants in the program at any one time.

I am concerned that the Internal Revenue Service ruling on tax liability and the competitive edge of the new HEW program will cause problems for us. Legislation to remedy both situations has been introduced in both houses of Congress.

We have expressed our dismay regarding the recent change in promotion policies.

We are investigating ways to increase our number of nurses, while at the same time relieving nurses of certain administrative details and allowing their return to the bedside.

We know we need more pharmacists and psychologists and are attempting to remedy that.

And our hospital corpsmen: we *must* make their lives better. We can't increase their pay, but we can certainly thank them for their service. When was the last time you recommended a corpsman for a medal? Or worse, when was the last time you said thank you? Without these young men and women we couldn't operate. Acknowledge that. *They* know it; let's let them know we know it. For too long we have accepted their service as a matter of course. They deserve better.

In the '79 budget OPNAV has identified nearly 20 million additional dollars. Our money for purchasing major equipment this year was nearly 20 million dollars. Our construction programs, although bogged down for a while, show signs of getting back on track. The bill to extend variable incentive pay and continuation pay for another year has cleared the committees and should go to the House floor shortly. Meanwhile, we have liberalized our current VIP policies by adoption of the Army system as it relates to fellowship training. We are actively investigating the possibility of reinstating the Physician's Assistant Program. I meet regularly with CNO and VCNO. Admiral Cox meets twice weekly with the Chief of Naval Personnel. The line Navy still considers health care a major recruitment incentive and is beginning to listen—and more importantly, to *hear*!

For too long we have let the "can do" attitude drive us in the face of conflicting imperatives. For too long we have had to do more with less. I'm ready to do more with more.

Nietzsche, whose philosophy has created a certain amount of horror in the world, did say one thing with which I agree: "That which does not kill me makes me stronger."

I am beginning to feel stronger. There are hard decisions to be made; there are tempests ahead; there are those who do not wish us well. I am confident in our ability to confound them all.

I pledge to you my absolute commitment to the delivery of first-rate health care in first-rate surroundings. I pledge to you my full support of our training programs. I have no intention of surrendering the Navy Medical Department to the inept and the disenchanted. Have patience and always look ahead. Know when to let some things take their course. I know how good we can be, because I know how good *you* are!

## Medical Corps Manpower

CAPT John E. Carr, MC, USN  
Director, Medical Corps Division  
BUMED, Code 31

Last year, at SAC VIII, emphasis was placed on the so-called billet-body realignment, the increasing importance of fully staffing operational medicine, and the approaching shortage of physicians. All of these have come to pass. The first stages of billet realignment have been completed. In the realities of the peacetime, all-volunteer Navy, the Medical Corps can no longer be afforded the luxury of exceeding authorized billets. The total is fixed by law at .65% of total Navy and Marine Corps manning. And we are beginning to understand that we must live within that authorized level.

For three years, we have promised the Line Navy that we would support the fleet with 100% physician

**TABLE I. Medical Corps Worldwide**

End Fiscal Year	Authorized Billets	On-board
1969	4404	4482
1970	4231	4529
1971	3955	4253
1972	3858	4450
1973	4173	3954
1974	4143	3403
1975	3757	3391
1976	3656	3439
Transitional quarter	3696	3628
1977*	3651**	
1978*	3636**	
1979*	3671**	
1980*	3624**	
1981*	3629**	
1982*	3629**	

\*Projection

\*\*Officer Data Sponsor Report as of 31 July 1977

manning. This past summer we were able to live up to that promise.

Also, the pending physician shortage arrived. In late December 1976, for the first time, our end-strength failed to meet or reach our authorized billets. We had a deficit of 76 physicians in January, some 140 in August, and we will be 172 physicians short in October of this. The mixture of specialties is especially important and will be of concern to you in your deliberations this week.

In this brief presentation, special emphasis will be placed on the primary care medical officer and support to the fleet; I will also discuss physician recruitment and our hopes for the future the Armed Forces Health Professions Scholarship Program.

Table I is a historical comparison of authorized billets and on-board strength. It demonstrates that since 1969 our billets have decreased from 4,404 to the present level of approximately 3,651. It shows that in 1969, 1970, and 1971 we did indeed exceed our authorized billets. Then in 1974, 1975 and 1976 there appears a deficit. But remember, at the end of a fiscal year (you will remember the fiscal year formerly began on 1 July) most Berry Plan participants have been discharged from the Navy early in June, and the new accessions don't come on until July. You can see that it really lowered all these figures of on-board strength. Actually in 1969, 1970, and 1971 we exceeded our billets by several hundred more than these figures show; and now that we've changed our fiscal year to begin 1 October it's hard to compare the two. So in 1974, 1975, and 1976 we were able to meet end-strength where it would appear on this table that we didn't.

**TABLE II. Medical Corps Distribution by Rank**

Rank	2100	2105	Total
VADM	1		1
RADM	12	1	13
CAPT	394	26	420
CDR	414	91	505
LCDR	323	990	1313
LT	64	1294	1358
Total	1208	2402	3610

**TABLE III. Berry Plan Accessions**

Year	Accessions	Variance
July 1970 (FY71)	740	—
July 1975 (FY76)	418	322
July 1976 (FY77)	211	529
Oct 1976 (FY77)	136	604
Oct 1977 (FY78)	38	702
Oct 1978 (FY79)	8	732
Oct 1979 (FY80)	2	738

**TABLE IV. General Medical Officers, Flight Surgeons and Submarine Medical Officers**

	FY73	FY74	FY75	FY76	FY77	Decrease
Total 2100 community	4345	3971	3836	3848	3618	16.7%
GMOs*	1752	1125	708	657	679	61.2%
GMO % of 2100 community	40%	28%	18%	17%	19%	

\*General medical officers + flight surgeons + submarine medical officers

**TABLE V. Primary Care Medical Officers, FY77**

Family practice	94	} 611 clinical specialty
Internal medicine	185	
Obstetrics/gynecology	141	
Pediatrics	191	
Aerospace medicine	220	} 268 military specialty
Submarine medicine	48	
Nonspecialists	411	
Total	1290*	

\*36% of total Medical Corps strength (3618)

We were able to meet end-strength until December 1976. Then, for the first time, we fell below end-strength, and have continued below end-strength.

Distribution of rank structure is shown in Table II. The Line has been concerned because it appears that we are top-heavy in the grades of captain and commander. This is one of the factors that influenced some of the promotion policies implemented several months ago: the time in grade was extended and the percentage for selection was decreased. Some of these policies may be able to be turned around, and that's what we are attempting to do. But this apparent top heaviness is another reason we've been frozen in recruiting and cannot accept captains and commanders at the present time.

The Berry Plan is coming to an end. You've heard that for so many years, you wonder if it's ever really going to happen. But in 1980 we'll get the last two Berry Plan physicians [Table III]. These Berry Planners are the supertrained specialists and not the primary care medical officers that we're looking for, for the most part. So the Berry Plan is fading out slow but sure.

Now the old term "general medical officer" continues in common use. In the military we now refer to the general medical officer as a primary care medical officer. But there's some confusion with that term because it includes not only the old GMO, but also flight surgeons and submarine medicine officers; there are also family practice specialists, and specialists in pediatrics, internal medicine, obstetrics—these are also primary care medical officers. Table IV shows our shrinking ratio of primary care medical officers. The ratio of GMOs (primary care medical officers) to the total 2100 community is ranked from 40% to approximately 19%. There has been a decrease in the total 2100 community by 16.7% and a decrease in GMOs by 61%. We saw this happen some years ago, and the primary care billets were then converted into other medical officer billets.

If we consider our specialists in primary care—the family practitioners, internists, obstetricians, and pediatricians—and add to those our aerospace and submarine medical officers as well as our military primary care medical officers, we arrive at a grand total of about 1,290, which is 36% of the Medical Corps strength [Table V].

Table VI shows that our desired level would really almost double family practice and internal medicine, and bring us up to a grand total of some 1,732 physicians, or 47% of the Medical Corps. In other words, we would have more primary care medical officers.

Table VII shows total medical officer manning as of 31 Dec 1976. In the first column you see our authorized level of billets and in the second our on-board strength; then in the far left column you see our claimants. The Atlantic Fleet was 74% manned and the Pacific Fleet was 86% manned while the BUMED activities had

**TABLE VI. Desired Primary Care Requirements**

Family practice	280	} 850 clinical specialty
Internal medicine	220	
Obstetrics/gynecology	160	
Pediatrics	190	
Aerospace medicine	300	} 378 military specialty
Submarine medicine	78	
Nonspecialists	504	
Total	1732*	

\*47% of total Medical Corps strength (3694)

**TABLE VII. Total Medical Officer Manning as of 31 Dec 1976**

Claimant	Authorized	On-board	Difference	% of On-board to Authorized
CMC	220	99	-121	45.0
CINCLANTFLT	129	96	- 33	74.4
CINCPACFLT	126	109	- 17	86.5
Other	100	101	+ 1	101.0
Subtotal	575	405	-170	70.4
Central operating account	297	43	-254	14.5
CHBUMED	2811	3052	+241	108.6
Unassigned		103	+103	
Total	3683	3603	- 80	97.8

**TABLE VIII. Total Medical Officer Manning as of 31 July 1977**

Claimant	Authorized	On-board	Difference	% of On-board to Authorized
CMC	220	133	- 87	60.45
CINCLANTFLT	130	130	0	100.00
CINCPACFLT	127	126	- 1	99.21
Other	95	96	+ 1	101.05
Subtotal	572	485	- 87	84.79
Central operating account	305	62	-243	20.32
CHBUMED	2726	2989	+263	109.64
Unassigned		94	+ 94	
Total	3603	3630	+ 27	100.74



TABLE IX. Physician Recruitment as of 28 Feb 1977

Year	Goal	Appointed		Total	Total Applicants	Appointment/ applicant ratio
		LT-LCDR	CDR-CAPT			
FY75	394	128	31	159	456	2.87
FY76	187	157	30	187	512	2.74
FY77	240	106	0	106	392	3.69
FY77	493	71	1	72	492	6.83
FY78*				250*	1180*	4.72*

\*Estimated

TABLE X. Recruiting: Direct Appointment to Medical Corps (8 Sept 77)

	Alien FMG*	Citizen FMG*	U.S. Graduates	Total
Total Applications	268	120	198	586
Selections	124	56	143	323
Declinations	55	25	60	140
Appointments	67	31	76	174

\*Foreign medical graduates

TABLE XI. Specialties of Physicians Recruited in FY77  
N = 174

Specialty	U.S. Graduates	Foreign Medical Graduates
General surgery	5	5
Psychiatry	4	7
Neurosurgery	3	0
Primary care medical officer	16	32
Pediatrics	8	12
Aviation medicine	12	3
Dermatology	2	0
Anesthesia	4	4
Internal medicine	7	11
Submarine medicine	1	0
Pathology	5	6
Ob/Gyn	3	9
Family practice	4	1
Orthopedics	1	1
Ophthalmology	2	0
Radiology	1	5
Total	78	96

TABLE XII. Primary Care Medical Officer Requirements as of July 1978

	On-Board FY78	Losses Jul-Dec 78
BUMED	234	127
Non-BUMED	183	145*
Total	417	272**

\*Plus 19 if single manager pool billets are considered.

\*\*291 if single manager pool requirements are added.

108% staffing. The Marine Corps was 45% manned, but in peacetime that level may not be too far off.

During the spring we set to work and by the end of July this year we had essentially manned 100% of the Atlantic and Pacific Fleets [Table VIII]. Marine Corps manning was raised from 45% to 60%, and we were able to maintain the level at BUMED activities. This summer we accomplished what we have promised for the last three years to do.

Physician recruitment [Table IX] has not been exciting. Nobody ever thought it would be. We know how hard it is to bring in quality medical officers. In 1975, our first experience, we recruited 159 physicians, and at that time we were able to take in captains and commanders. Then there was a flurry of activity during the transition quarter of 1977, and in that three-month period we took in 106 medical officers.

The goal for 1977 was 250 new physicians. We thought if we took in 250 we might break even. But we really didn't think we would be able to recruit that many. Table X is the bottom line up to 8 Sept 1977: the total number of applications is 586, and we selected 323 of those; there were 140 declinations and 174 appointments—approximately 30% of total applications. That doesn't upset us too much, because we realize that many of those applicants don't really want to join the Navy. They'll join the Navy to go to San Diego or Bethesda, but if you talk about Twentynine Palms or a ship, they soon fade out. We're looking for good medical officers who want to join the Navy, and not specifically for only one duty station.

We have both alien and citizen foreign medical graduates. This is a problem because we are very limited in assignments for aliens, and also for women. Some 38% of our appointments are aliens and 16% of the total are female. Most female applicants were aliens, and we have problems assigning them, especially to fill military primary care medical officer billets.

Table XI is a breakdown by specialty of the 174 physicians we've taken in so far in FY77. As you can see,

foreign medical graduates exceed U.S. graduates. Most of the 48 primary care medical officers we recruited are alien foreign medical graduates and we are limited in assigning them to operational billets. The next biggest concentrations of alien physicians are in internal medicine and pediatrics, and then only a handful in each of the other specialties.

In FY78, we will have 234 primary care medical officers on-board in our BUMED activities [Table XII]. The 183 primary care medical officers in non-BUMED activities would be on ships or with the Marines, for the most part. So we will have a grand total of 417 primary care medical officers remaining. But we will lose 127 primary care medical officers in the BUMED activities and 164 in non-BUMED activities for a total loss of 291 physicians. Our first concern will be to replace the 164 physicians in operational billets.

Where are we going to come up with those physicians? The volunteers really don't help us; at best we will have 48 physician volunteers that we might be able to assign in those billets. But they are going to be really too few and too late to do us any good. Our biggest source is physicians who have completed their first year of graduate medical education—GME-1. There are 201 in Navy programs and 64 in civilian programs.

Table XIII is a picture of where we will stand on 1 Oct 1977. In the BUMED activities there will be 2,933 billets and in the non-BUMED activities some 735, for a total of approximately 3,668 billets. You can see that physicians assigned in the BUMED activities exceed billets by some 41 doctors. That's an improvement over last year, but we are still striving for a billet-body match. You can see we will be short 172 physicians, and these billets all come from non-BUMED activities. So we really have dichotomy here. What we're short of are trained specialists and where the numbers show up are in non-BUMED activities.

Table XIV shows the specialties in which we are going to be short on 1 Oct 1977 in BUMED activities. Shortages are going to exist in internal medicine, pediatrics, a big shortage in family practice, dermatology, psychiatry, and radiology. It's the surgical specialties that we're not short of at this time.

Now some of you may say, "But that isn't right at all. We don't have physicians enough to take care of our beneficiary population. We need more specialists. We need more billets for them." And that may well be true. But this is at the bare bones, rock-bottom level. This is what remains after the billet-physician match, and these are the billet levels we have on 1 October.

You can see in radiology that this is one of the specialties where we've been short. We have 97 billets and only 90 physicians. Unfortunately, those seven that we're short are in critical areas and we have had to curtail some services in those areas. We need more than 97 billets, but we don't have the physicians to support an increase, anyway.

Where is help going to come from? There is no doubt

**TABLE XIII. Medical Corps Status as of 1 Oct 1977**

	Assignment Spaces	Physicians Assigned	+ / -
BUMED activities	2933	2974	+ 41
Non-BUMED activities	735	522	-213
Total	3668	3496	-172

**TABLE XIV. BUMED Activities**

Specialty	Assignment Spaces	Physicians Assigned	+ / -
GME	939	971	+32
Primary care	204	234	+30
Internal medicine	246	236	-10
Pediatrics	190	185	- 5
Family practice	119	85	-34
Dermatology	48	45	- 3
Psychiatry	102	91	-11
Anesthesiology	90	102	+12
Neurology	25	23	- 2
Radiology (diagnostic)	97	90	- 7
Pathology (anatomical & clinical)	70	76	+ 6
General surgery	115	142	+27
Neurosurgery	19	20	+ 1
Ob/Gyn	128	129	+ 1
Ophthalmology	54	57	+ 3
Orthopedics	81	122	+41
Otolaryngology	59	66	+ 7
Thoracic & cardiovascular	13	18	+ 5
Urology	39	37	- 2

**TABLE XV. Armed Forces Health Professions Scholarship Program**

Fiscal Year	Number of Navy Degree Rec'd	Navy Graduates	Navy Interns	Civilian Residents	NADDs* Interns	Deferment
1975	300	92	45	30	133	
1976	356	80	52	214	10	
1977	250	172	0	49	29	
1978	300	200	0	100	0	
1979	300	200	0	100	0	
1980	300	200	0	100	0	
1981	300	200	0	100	0	

\*Navy Active Delayed Duty Program for Specialists

that our salvation is going to be the Armed Forces Health Professions Scholarship Program [Table XV]. These are approximate numbers that we have available each fiscal year on graduation. Of the 300 or so graduates, about 200 will go into Navy internships and 100 into civilian internships. These are individuals who are going to be obligated for an average of about three and a half years, and if they take training some of those will be obligated for a lot longer. So we expect when we enter the 1980's that we will have a pool on board of some 1,500 of these scholarship students.

The problem is that unlike the vanishing Berry Planners these people are untrained and we must train them. So salvation is coming; but only if we train these individuals will we have the specialists we need in the future.

Fortunately, in 1975, when we had plenty of physicians, we were able to defer 133 of these students. They will be coming on active duty next summer, so we get a bonus of 133 specialists. It's too bad we couldn't do that every year. It's nice to have them next year when we especially need them.

This year there will be intense competition for our scarce manpower resources. We are looking at new ways to measure need. We will be taking a long, hard look at all requirements. We cannot depend upon recruiting to supply us with trained specialists. We must strive to ensure that the Armed Forces Health Professions Scholarship Program is an attractive, viable alternative. We must train at full capacity while supporting the seagoing Navy 100%. This will not be easy, but we will accomplish it.

## PANEL DISCUSSION

RADM J.W. Cox, MC, USN (moderator)

RADM Maxine Conder, NC, USN

CAPT John Carr, MC, USN

CAPT John Rizzi, MC, USN

CAPT Clyde Wimberly, MC, USN

CDR Walter Godfrey, MSC, USN

LT Warren Williams, MSC, USN

*Q. Currently, 15% of our hospital corpsmen, 15% of our nurses, and 15% of our medical officers are home-based in San Diego, at a time when about 30% of the operating forces are located there. Similar ratios exist in Portsmouth. My question is: Is it planned to continue this ratio of medical personnel to operating forces in Portsmouth and San Diego?*

**RADM Cox:** The only firm idea of appropriate and realistic distribution of billets that has been accomplished is in the Medical Corps. You know what our total allocation is. You know we cannot exceed that total allocation. You know we are going to have an actual personnel shortfall from that billet allocation. The distribution of manpower in the Medical Corps is based on an imperfect formula, but for the first time on a formula that is defensible. It takes into account the active-duty Marine Corps and Navy strength in the cachment area, including Portsmouth and San Diego. It also includes com-

posite work units and graduate training minimum factors.

Similarly, the Nurse Corps billet reallocation is based primarily on the number of active-duty personnel in the area; second on the composite work unit, imperfect as that may be; and third, it takes into account the graduate medical education mission. Those are the major elements in the formula that determines billet allocation.

In the first allocation, we made a tactical error in trying to allocate the specialty mix within total billet authorization. This brought forth appropriate indignation. We went back to you and said, "Okay, here's the total. You tell us what the proper mix should be. We'll try to fit it as best we can." The requirements were received and adjustments were made and you all got your figures. This will be followed by a Nurse Corps allocation based upon the same principles and also on physician manning. And immediately following this, there will be a redistribution of Hospital Corps billets based on two categories—the 0000 or general duty corpsman, and those with a specialty. This should bring into equity, in those categories of personnel, the San Diego and Portsmouth regions. And when you take into account the personnel who are already with the operating units—which we must do in the next refinement of the formula—there will be further fine tuning to bring Portsmouth and San Diego into closer alliance.

This is tricky business. We make no claim to having achieved perfection. The formula is imperfect.

*Q. For many years we've heard an awful lot about the physician shortage and we've heard some about the ancillary personnel shortage, which to me is by far the greater one. For instance, I'm not sure our problem is so much a physician shortage as it is improper utilization of physicians. Physicians are called on to be X-ray file clerks, laboratory technicians, ward orderly corpsmen—doing everything except what we're training them for or paying them to do. The Hospital Corps situation, the ancillary help situation, is something that is batted around and seems to be hit from all sides with glancing blows but is never hit dead on. It's my understanding that we're fixed at a certain percentage of the enlisted strength of the Navy and that this is a grossly antiquated percentage, set at a time when care for retirees was only a minimal problem. It seems to me that our retired forces make up a much greater percentage of our total beneficiaries today than when that Hospital Corps limit was set. Is anything being done to try to change this? And do we have a ghost of a chance to get it changed? Because if it can't be changed, I don't see how we could ever have the first-class medical care system that we all aspire to.*

**RADM Cox:** I'm going to pass that question to CDR Godfrey and let him answer it. Unfortunately, in terms of billets or funded spaces and dollars across the various appropriation lines, there is no provision or programming in the budget cycle for a retired and dependent care greater than 10% of facilities. We're not able to program at all for personnel to care for retirees and dependents in the Medical Department Planning, Programming, and Budget System.

**CDR Godfrey:** You are addressing a section of Title 10, United States Code, which limits the Hospital Corps to 3.5% of the regular enlisted strength of the Navy and Marine Corps. This strength is also included in Title 10, U.S.C., and is not the end strength provided each year by Congress. The figures address personnel, not billets. The Hospital Corps has



approximately 19,500 billets, excluding training billets and billets for personnel accounting (approximately 4,000). We are manned to about 98% of the 19,500 billets and to about 95% of the training and personnel accounting billets.

You can see we are close to being manned at our billet strength; however, if we gain enough additional billets we can grow in regular Navy personnel up to the 3.5% limit. Although the law does not limit us at this time, as we gain in billets and personnel we will face restrictions on the number allowed on board.

To increase our billets we must determine the number we require and justify the need. At present, through the Shore Requirements, Standards and Manpower Planning System (SHORESTAMPS), we are determining staffing standards for each of our specialty areas. Criteria have been established for the orthopedic discipline, including physicians, physical therapists, physical therapy and occupational therapy technicians, and cast room technicians. The surgical specialties are now being analyzed, and within three years the majority of our specialties should have criteria that will scientifically support our requirements in the budget area.

At that point, we enter into an adversary type of "competition." As you know, Congress sets yearly limits on end strength for each of the Armed Forces, and the Medical De-

then we can try to obtain a greater number of billets for the Hospital Corps, in competition with the personnel billet structure of the rest of the naval establishment.

*Q. I wonder if there is any thought as to closure of the fleet medical pool concept? Also, in regard to alien physicians in the Navy who are given a full bonus as part of their commission: When are we going to be allowed to put these people in operational or sea duty billets?*

**RADM Cox:** I'll handle part of it and then hand it to CAPT Wimberly. The first element of your question related to the pool concept. That was a very valuable interim measure. We were permitted to initiate it and give it a one-year extension on the basis of an acceptable interim alternative to a definitive plan. That definitive plan is assignment at the end of the first year of graduate medical education: trainees will do operational tours, in a study-work-study fashion, before they return to complete their graduate medical education. So the ship billets we are now filling with specialists on a plan of 90 days afloat with the unit will be replaced, as of September 1978, with graduates of GME-1.

Your second question about when we will be able to assign alien foreign medical graduates to operational units has to do with the law. As you know, that law has been on the books for



Part of SAC IX panel (L-R): LT Williams, CAPT Rizzi, RADM Conder, and RADM Cox

partment is only one Navy claimant among many who contest for a portion of the Navy end strength. Even if we are fully supported by valid criteria, the Chief of Naval Operations must set priorities within the allotted final end strength. We cannot realistically expect to receive 100% of our requirement. We must be ready to adjust to the final decision and perform our mission within the limitations imposed.

**RADM Cox:** Thank you CDR Godfrey. In summary, the law as it is written and interpreted does not constrain us. The answer to the problem will come only when we have built a validated program on a criteria reference system. The first step—which the Surgeon General has already taken—is to ask that the flow through the recruit training depots and Hospital Corps "A" School go to 100% of billets now authorized. As soon as that is achieved, as soon as we've filled all the coffers with human resources that we already have approved,

many years and is very, very difficult to change. A portion of the law says no foreign alien may be a member of ship's company. (It's this same category of the law that says females may not serve aboard combatant vessels.) But we can assign aliens with units as portions of embarked troops; that is, they can be in the vessel, but not of ship's company.

I would hope that those alien FMGs who have received variable incentive pay and who have a three-year initial active duty commitment, and who are highly qualified, will remain with us; and that eventually we could require them to take the necessary steps to acquire citizenship and be removed from the alien status. But right now I don't know of anybody willing to attack the law that says foreign aliens may not serve as members of ship's company aboard U.S. military vessels.

**CAPT Wimberly:** About the only thing I would have to add would be that the single manager concept and the pool system

is going to end in September 1978. We were going to extend the pool system, but after a study we found out it's going to be more detrimental to the regions if we extend the pool because we'd be putting primary care medical officers in the commands and sending specialists to sea. So the pool will not be extended. It will really affect San Diego very much. It won't affect the East Coast much at all, but it would have extended 28 physicians in the Pacific Fleet—taking 28 of your specialists and sending them to sea. So this is going to stop.

**RADM Cox:** If I were a hospital commanding officer and had an alien doctor and wanted to send him to sea, I'd certainly urge him to get his citizenship, or try to expedite it. I think that's one of your solutions: to encourage these physicians to seek citizenship.

Although the fleet medical pool will expire in September 1978, we're actively pursuing another application of the pool concept. And while it isn't crystallized, it appears to be cost effective and looks like it will be quite reasonable. Specifically, this pool would meet requirements on a contingency basis—not a military contingency, but if somebody breaks a leg or has acute appendicitis or develops a lung abscess. Certain of our isolated duty stations require specialty coverage for those contingencies. Rather than take a fully trained, board-certified or board-qualified individual and lock that individual into a two-, three-, or four-year tour in an area where he or she cannot practice to the fullest extent the specialty for which he has been trained, we are exploring the possibility of sending in specialists on temporary duty. We think many of our specialists might like to see Adak or Kodiak, or perhaps even a little place I've recently become aware of, the Pacific Missile Site up in the State of Washington. They'd spend a few months standing the watch, maybe provide a little continuing education for primary care personnel in those isolated stations. Most of you can think back to the time when God's gift to the world was the big cardiologist, and then you find yourself in an isolated duty station and you are the psychiatrist, the otolaryngologist, the hematologist, internist, primary care medical officer, and marriage counselor. Those experiences weren't bad. I don't think we can return to giving our internists and our fully trained general surgeons that kind of experience for three and four years running, but I have a sneaking suspicion that most of them would enjoy it periodically on a three-month basis. This is only in the advance idea stage, but I thought I'd share it with you.

## Our Medical Equipment Needs

CDR John Swope, MC, USN  
Biomedical Engineering Branch  
BUMED, Code 416

The practice of medicine has moved from the cottage industry prevalent at the turn of the century to a recognized multibillion dollar industry. The total health care industry in this country comprises about 8.3% of the gross national product, or \$140 billion; this is estimated to grow to approximately 10% in the 1980's. Given these growing costs, you all know the "buzz word"

currently being passed around: cost containment.

In addition, the needs of the practitioner in the cottage industry era were simple, as was his ability to treat patients. Now, as technology expands along all avenues, needs become more complex. We have developed many varied treatment modalities. New occupations have been developed at varying proximities to the patient. Specialization has set up kingdoms with different mores, hierarchies, and languages. The resultant lack of communication has caused standards to be produced that are sometimes counterproductive. It seems that there is much more concern about holding down costs than about advancing technology or providing patient care; more worry about dollars saved for the moment than benefits lost to the future.

Equipment procurement falls into this scheme of ever-increasing complexity, division of labor, and cost containment. Heretofore the rule was that whatever the doctor wanted, he got. This is no longer the case for many reasons. We now have the Armed Services Procurement Regulations and a host of other constraining regulations, together with the bureaucracy, to enforce them.

Competition for the health care dollar has permitted the emergence of many new manufacturers and vendors of medical equipment. Some produce quality equipment, others don't; some produce only trinkets with pseudomedical or pseudoengineering logic behind them. The busy physician does not have time to study in depth the merit of each new piece of equipment, or to develop his own criteria for essential characteristics. We are like the sailor at the ship's store who is persuaded to buy the attractive, rather than the functional.

What we need is a forward-looking managerial approach to equipment. We—meaning physicians and practitioners—have to be able to describe our needs in the context of patient care. We also have to be able to justify our needs within this same reference. We cannot say that because brand X has a common mode rejection ratio of 1:50,000 and brand Y has a ratio of 1:10,000 we should buy brand X because more is better. We must show in this example that degradation of signal is unacceptable for good patient care.

Justification in terms of dollars saved should also be foremost in our minds. If we can accommodate a new technology that not only will fill patient care needs but also eliminate costs in terms of consumables or man-hours, certainly the procurement of this new technology is justified. Unless we as practitioners come up with valid reasons for our demands for specific types of equipment, we are either going to get substandard equipment because it's cheaper or suffer the agony of answering "why" when the auditors come by. We have to close the disconnect between the needs of the user and the purchase specification. To this end, I am asking members of each specialty here today to take a hard look at their major or high-cost equipment to determine requirements or essential characteristics.

## DEFINING WHAT WE NEED

We not only have to address the quality of equipment, but also its quantity. We probably do need an EKG oscilloscope at each bedside in a coronary care unit, but do we need five blood gas machines in a 100-bed hospital? Does each of three services need an operating microscope, or can they be shared? And if they can be shared in one hospital but not in another, what is the differentiating parameter? We need some standard for outfitting to define how much we need.

How we define *what* we need is sometimes difficult. In an ICU, it may be on a patient-bed basis, such as one EKG oscilloscope per patient bed. In other situations, it may be based on other common parameters, such as the number of procedures, X-rays, prescriptions, or hospital corpsmen.

Other hard questions to answer are: When should equipment be replaced? What is the life span of a patient bed? When does new technology render obsolete what we have now? Only the specialist in the field can really identify changes in the state of the art. The life span of equipment should end when the equipment no longer fills the essential characteristics. The life span of equipment should also terminate when the projected cost of maintaining the equipment exceeds the cost of a new unit. Replacement of equipment should be programmed and planned, rather than postponed until it must be replaced on an emergency basis after it no longer functions.

The change in technology that we are experiencing should be documented. I am the Navy's representative to the American National Standard Institute Committee for anesthesia and resuscitation equipment. This committee, labeled Z-79, has started to produce standards: the most important is the ventilator standard, now up for adoption by the International Standards Organization. This standard has already changed the design of ventilators.

Anesthesia machines are now being addressed by the committee.

Many equipment standards, with varying degrees of professional input, are published by a variety of standards-making organizations. Some are performance standards, and some are design specifications. The Bureau of Medical Devices, Dept. of Health, Education and Welfare, has published its standard surveys for 1977; in the publication are 35 pages of standards concerning medical equipment. An equally valid method of documenting changes in the state of the art is to cite the standard of practice as published in professional journals.

Another sadly neglected area of equipment management, now a requirement of the Joint Commission on the Accreditation of Hospitals, is preventive maintenance. The Navy spends a lot of money to send hospital corpsmen to the Army Medical Repair School in Colorado, hoping to save money by having the capability

of repairing equipment inhouse. Some of the biomedical electronics technicians, BMETs as they are called, are utilized fully; others, however, are ignored in favor of service contracts, and their valuable talent is put to menial tasks such as repairing wall outlets. I believe these BMETs should be given first crack at any equipment malfunction. If they can't repair it, then outside help should be requested. You clinicians should assist them in getting continuing education in their field so that you can avail yourselves of their services.

A point to note is that some of our newer hospitals are requiring the vendors to provide videotapes of operation and maintenance procedures for all equipment, to provide reference material for the BMETs.

We must also think about what additional resources will be needed with new equipment: structural reconfiguration, additional power, new plumbing, more air conditioning? Likewise, the additional people required must be considered, not only in terms of numbers, but also talent. Will there be an extensive training period associated with new equipment?

Along with interface with structure and utilities, compatibility with existing and future equipment should be considered. As we all know, computers are entering the field of medicine at a great rate. Can, or should, this new equipment be interfaced with computers to achieve an expanded data processing capability?

Availability and cost of consumables should be investigated before new equipment is procured. A classic example of failure to do so occurred aboard ship where an arterial line was used to monitor blood pressure in a critically injured patient: the line that connects the arterial catheter and the transducer had not been procured for the ship.

These, then, are the equipment considerations needed to effectively manage the Medical Department program. I am asking for your help in your areas of specialization. Specifically:

- Identify what equipment is good, as well as what we cannot afford to buy, and why.
- Identify how many pieces of what equipment is needed, and where.
- What else should be considered: structural changes, people, other components, consumables?
- How is this equipment cared for?

## EQUIPPING NEW HOSPITALS

At the Bureau, five things help us equip new hospitals:

- 1) Space programs calculator
- 2) Master outfitting file
- 3) Equipment catalog
- 4) Medical architectural plates
- 5) Review

A space program for a new facility is developed using such input as patient-loading data, demographic



figures, and other parameters. This space program is run against the master outfitting file, and from this interaction we get an equipment list by room for the new facility.

We have also developed medical architectural layout plates for the architect and engineer in which we list design parameters for approximately 150 different types of rooms. The equipment comes from our equipment catalog, which has grown like Topsy. The initial input came from the consultants at Bethesda. There were additions from the Army in their Walter Reed evaluation, and from the Air Force. There are many duplications, obsolete gear, and of course missing items.

Updating the catalog is our biggest problem. We finally have all the equipment broken out by specialties, and these will be given to you to review. You all know the GIGO rule in computers: with garbage in you get garbage out. We need your help in replacing what garbage we have in the computer with quality gear.

Ben Franklin once said, "One of the great tragedies of life is the murder of a beautiful theory by a gang of brutal facts." I believe if we identify these brutal facts, we can harness them into producing not a beautiful theory, but an aggressive system for managing our equipment. CDR Lewis Mantel and I have set about to define the essential characteristics of anesthesia equipment. I am asking you to do the same for equipment you use. Why? For several reasons, but primarily because of the tremendous expenditure of funds for which the Navy is responsible. This is not only for the annual budget process, but for the new construction program and fleet outfitting.

This past year, I participated in my first annual budget process at the Bureau level for determining who gets how many dollars for what equipment. As I, along with others, looked through who wants what, we found that some of the equipment requested was no longer manufactured. Other equipment was justified by the statement, "Needed for patient care." Other requests had been funded for previous years. It was painfully obvious that the people who submitted those requisitions were operating under the premise that what the doctor wants, he gets, and that they gave little review to their lists.

We are now preparing equipment lists for new hospitals at Bremerton, Bethesda, Orlando, Yokosuka, Camp Lejeune, and San Diego. The total will be approximately \$70 million dollars for initial outfitting equipment alone.

If we take into account the equipment involved in the annual OPN [other procurement, Navy] evaluation, the ships, and the field medicine arena, we certainly will exceed \$100 million. This is a huge expenditure and to go to procurement without the most expert advice (namely, you specialists) is, to say the least, not wisely husbanding the taxpayers' dollars.

Another reason for you to participate in setting mini-

mum criteria is that the Health Resource Administration has issued a request for just such a proposal. JCAH is looking for standards such as these to enforce. However, if we, as a federal agency, develop our own standards, we can abide by what we say and not by what an independent contractor says we ought to have.

I ask your help in this effort toward quality equipment management.

## DISCUSSION

**Q.** I am perplexed by the dilemma presented by our biomedical electronic technicians' attempts to repair equipment covered by procurement warranties. So many of the manufacturers will say, if you touch that, the warranty's null and void. If you let the technician work on the equipment and he can't handle it, you've got an unprogrammed, unfunded, gigantic expense. Are there any plans either to resolve that dilemma or to address it in a procedural manual describing under what circumstances it's OK to let a technician do the work?

**CDR Swope:** Many major equipment manufacturers have agreed to train our BMETs on their equipment. Some have gone so far as to extend their warranty from one year to two years if we use our own qualified BMETs to repair our equipment. This gives the manufacturers the advantage of not having the labor costs, and gives us the advantage of two years of free replacement parts.

We are also looking at the medical equipment repair school in Colorado, trying to get current equipment for our BMETs to work on. But we have to know what equipment *should* be worked on. That's one of the reasons for this equipment review.

**Q.** I'd like to ask whether we can continue to train a sort of general, all-round technician to try to take care of everything, which I think is impossible. Or shall we categorize the repairman to deal with certain types of equipment? I'd like to know if there's any attempt to do that or whether we're still trying to train one person.

**CDR Swope:** We'd have to know what equipment we need to train them on before we can orient what the training is going to be. We have had in the past many pieces of equipment at the Army Medical Repair School, but some of it is no longer used. We need an updated list so we can plan a practical curriculum.

**Q.** There are certain types of equipment already well established. For instance, audiometric equipment. I don't know that the medical equipment repairmen who are in our hospitals now are qualified to take care of that. I don't think they are. We put out service contracts on this equipment; it's not overly expensive and we've gotten immediate response when we've had any problems. The question is whether it's better to try to train people to do that sort of thing inhouse, or whether with a lot of the equipment it's better to continue with service contracts.

**CDR Swope:** As I said earlier, I think the BMETs should be given the first crack. If they cannot repair the equipment, then you get outside help. Let them have the first try. It's going to be cheaper to have them fix equipment, if they can, than to use an outside contract. If they can't—and most of them will admit when they cannot do something—then you can go to an outside contract.

## Features

# A Regional Approach to Occupational Hearing Conservation

CAPT Tom Miller, MC, USN   Charles E. Fankhauser, Ph.D.   T. Wayne Loyborg, M.S.

Concern about the harmful effects of work-related noise is relatively new in the United States. It was only seven years ago that Congress amended the Clean Air Act (42 U.S.C. 1857 et seq.) to include the Noise Pollution and Abatement Act of 1970, establishing the Office of Noise Abatement and Control within the Environmental Protection Agency. Also during 1970, the Occupational Safety and Health Administration authorized the Secretary of Labor to set safety and health standards for firms engaged in interstate commerce, with both criminal and civil sanctions against violators.

At about the same time, the Department of the Navy cancelled prior instructions and issued BUMED Instruction 6260.6B of 5 March 1970, "Hearing Conservation Program." One impetus for this revision was an increased number of compensation claims for hearing loss made by the Navy's civilian work force.

BUMEDINST 6260.6B provides a guide for establishing and implementing "uniform and effective hearing conservation programs throughout the Naval Establishment." The instruction applies to all active-duty and civilian em-

ployees of the Navy who are exposed to high noise levels.

Under BUMEDINST 6260.6B, a worker's exposure to noise must be regulated according to prescribed limits. The essential elements of an effective hearing conservation program are outlined, including noise measurement and analysis, audiometry, use of personal noise protection devices, education, and engineering control measures.

BUMEDINST 6260.6B is a good instruction, with recommendations compatible with valid and reproducible techniques. Within the Navy the technology is known, the necessary equipment is available, and personnel can be trained to assume specific hearing conservation duties.

### IMPROVING THE SITUATION

Given so good and workable an instruction as a guideline, why was the annual compensation for hearing loss paid to Department of the Navy civilian and military employees greater than the operating and management budgets of most of our naval regional medical centers? Why, as here at NRMC Oakland, for example, was the number of patients referred for noise-related sensorineural hearing impairment on the rise? Even more alarming, what could account for the increased number of young people being referred—many during their first enlistments? One might conclude that heightened awareness of hearing

conservation was the impetus for the additional referrals, but if hearing conservation programs had been in effect, protective measures should have prevented those hearing losses.

We quickly determined why noise-related hearing problems persisted: BUMEDINST 6260.6B was honored more in the breach than in the observance. It was not uncommon to find untrained hospital corpsmen conducting audiometric examinations in unacceptably noisy areas with inadequate equipment. At the other end of the spectrum we found properly trained and well-motivated corpsmen who, because of unsympathetic command policy, were frustrated in their attempts to establish a hearing conservation program. Our subsequent efforts were directed toward improving this situation throughout the 12th Naval District.

There seemed to be two key deficiencies:

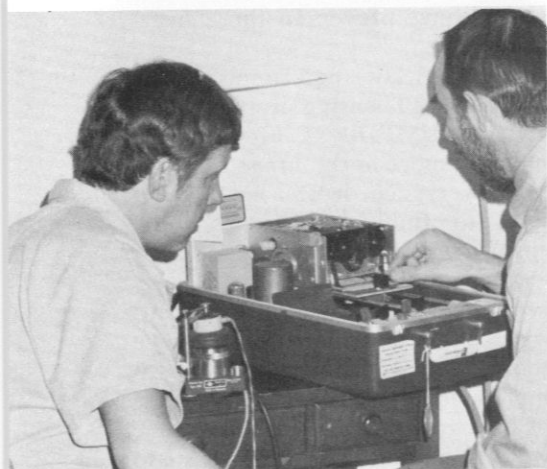
- Insufficient occupational hearing conservation technicians properly trained to meet regional requirements.
- Lack of follow-up care for patients with suspected hearing impairment.

We discussed these problems with staff members of the Navy Environmental Health Center in Cincinnati and discovered that our plea for additional occupational hearing conservation technicians was not uncommon: other naval regional medical centers were having similar problems. But there could be no im-

From Naval Regional Medical Center, Oakland, Calif. 94627, where CAPT Miller is chairman, Department of Otolaryngology and Maxillofacial Surgery, Dr. Fankhauser is chief, Audiology and Speech Pathology Service, and Mr. Loyborg is director, Regional Hearing Conservation Program.

mediate increase in hearing conservation technicians in the 12th Naval District because of a Navy-wide shortage of such technicians and lack of billets for them.

We then decided to set up an independent training program for our own region, reasoning that otolaryngology has a central responsibility in treating and preventing work-related hearing problems (1) and that otolaryngologists are best able to ensure the medical adequacy of a hearing conservation effort. Also, our direct involvement in training occupational hearing conservation technicians seemed to be the surest way to guarantee that necessary follow-up care would be provided.



**Audiologist inspects training equipment**

At NRMCOakland, our staff includes several audiologists who have had considerable experience in occupational hearing conservation; two are familiar with the civilian industrial community (2) and have experience working with audiometric technicians (3). These audiologists readily applied their background to the particular requirements of the 12th Naval District and with staff otolaryngologists developed a training program for occupational hearing conservationists.

### **OAKLAND PROGRAM**

Our program meets standards set by the Inter-Society Committee on Audiometric Technician Training

(4), and is recognized as a two-credit course by a local state university. People who successfully complete the course may qualify for national certification by the Council for Accreditation of Occupational Hearing Conservationists. They are also qualified to carry out adult screening air conduction audiometry and other aspects of a comprehensive hearing conservation program, with the exception of testing children, which requires additional formal training and experience.

Our training curriculum is a composite of ideas borrowed from various sources (5-10) and is supplemented by our clinical experience (11-12) to include features consistent both with good medical practice and with the letter and intent of BUMEDINST 6260.6B. We require three days of intensive practical training and classroom instruction, including both practicum and lecture. The practical portions of the course include otoscopic examination of the ear, training in audiometric technique with both manual and self-recording audiometers, and methods for fitting personal hearing protection. Lecture topics include physical acoustics, psychoacoustics, anatomy and physiology of the auditory system, Navy and other noise control regulations, and the Navy hearing conservationist's educational role. Typical reports of hearing loss are reviewed. Trainees are examined for their understanding of both practical and lecture portions of the course.

We have completed five training courses and have certified 64 occupational hearing conservationists. We plan to offer these training courses each quarter until all audiometric test facilities in the 12th Naval District have a full staff of certified occupational hearing conservation technicians, with additional back-up personnel available. Subsequently, we plan to continue our training program to supplement normal attrition of trained personnel through retirement from active duty or transfer. We will also offer short refresher courses.

Periodically we visit audiometric testing facilities to inspect the quality of services being offered. These visits usually coincide with a weekly specialty clinic held at the various branch dispensaries by one of our staff otolaryngologists. This arrangement brings together for a frank discussion the senior medical officer at the branch clinic, a staff otolaryngologist, an audiologist, and the technician who does the testing.

Besides inspecting spaces, equipment, and audiometric technique, we also discuss the effectiveness of the program for monitoring personnel exposed to noise and we review patient referral procedures. The inspecting audiologist also coordinates maintenance and calibration of audiometric equipment. A regional pool of audiometers has been established and all calibration and minor repairs that cannot be done on location are completed by the Medical Repair Service at NRMCOakland. This limits long periods of equipment down-time and possible loss or damage associated with transcontinental shipment of audiometers.

The task is by no means completed, but we have observed a definite improvement in audiometry and hearing conservation in the 12th Naval District. We are particularly pleased with patients recently referred for noise-related hearing problems. One of our best referral sources has been a local Armed Forces Entrance and Examination Station: the two audiometric technicians there, both trained in our program, have helped identify deficiencies which in earlier times might have gone on to become service-connected liabilities.

The most significant aspects of our involvement with hearing conservation and audiometric testing is that personnel in branch clinic audiometric testing facilities have learned that we can consistently provide excellent referral and consultation services at the regional level. The net result of our effort has been better medical care pro-



vided for more patients at a reduced cost to the Navy.

We recommend that this approach to occupational hearing conservation problems be considered by other naval regional medical centers. It should be emphasized, however, that course instructors and the curriculum must meet the criteria of the Council on Accreditation of Occupational Hearing Conservationists. Also, close coordination must be maintained with Navy environmental health centers to ensure a consistent Navy-wide program.

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# BUMED SITREP

**CHOLERA SHOTS . . .** Cholera booster shots, once required every six months for military personnel outside the U.S., are now being given to Navy people only when they will be residing in a country with a cholera outbreak (as determined by the World Health Organization), or if shots are required by the host country. The change is contained in BUMED Instruction 6230.1H of 7 June 1977.

Navy members will continue to receive the basic series of cholera shots if they are stationed outside CONUS or preparing to depart for overseas duty assignments. But they will not have to receive a booster shot every six months unless they are affected by the new guidelines.

**RESERVE FITNESS REPORT . . .** The Naval Reserve has begun using the computerized officer fitness report form (NAVPERS 1611/1) for all inactive duty Reserve officer fitness reports. This is the same form used for active-duty officers.

Use of the computerized fitness report form will allow Naval Reserve Selection Board brief sheets to be prepared automatically in a standardized, timely, and cost-effective manner.

BUPERS Instruction 1611.12E of 21 July 1977 provides additional information.

**SEA BADGE . . .** The Senior Enlisted Advisor identification badge (SEA badge) authorized for wear by master chief petty officers of the command, senior chief petty officers of the command, and chief petty officers of the command in accordance with chapter 5, article 5637, *U.S. Navy Uniform Regulations 1975*, is no longer available for issue. A badge of new design is being manufactured and will be made available for purchase through Navy Exchange uniform facilities.

**AUDIT TIPS . . .** The following recommendations were noted on recent audits and are offered for the consideration of all naval medical facilities:

- Ensure that the accounts payable file contains only unpaid documents and that these documents are reviewed, validated, and followed up after 90 days to ensure timely liquidation in accord-

ance with NAVSO P-3006, par. 501.3.

- Establish adequate controls over travel advances, recording and liquidating travel advances in accordance with NAVSO P-3006-1, par. 405-12d.
- Ensure all travel claims are submitted within 15 calendar days, in accordance with NAVCOMPT Manual, par. 032106-2b.
- Include in OPN budget submissions an itemized list of components and accessories to be purchased with an investment item.
- Perform in-depth manpower review to validate billet requirements, in accordance with OPNAVINST 1000.16C. Change manpower authorizations to reflect minimum military requirements needed to support facility mission.

**RESERVE MCPO/LIAISON . . .** HMCM Thomas E. Haley, USNR-R has been named MCPO/Liaison for the Naval Reserve Medical Program. Chief Haley lives in Lower Burrell, Pa., where he is affiliated with a medical unit of the Fourth Marine Division. As a member of the Medical Reserve Policy Board, he will represent the 5,000 hospital corpsmen of the Ready Reserve.

## WANTED: EDUCATION ARTICLES

. . . *U.S. Navy Medicine* is looking for articles of any length about education and training programs, administration of such programs, educational opportunities, or philosophy of education. Editorial assistance will be provided by BUMED Codes 0010 and 0011. Send articles to: CAPT S.J. Kreider, MC, USN, BUMED Code 0011, Washington, D.C. 20372.

**ENOUGH COPIES? . . .** The following distribution of *U.S. Navy Medicine* is authorized: 1 copy for each Medical, Dental, Medical Service and Nurse Corps officer; 1 copy for every 10 enlisted Medical Department members.

Commands are requested to ensure that copies are made available to Medical Department members in line with the above distribution policy. Requests to increase or decrease the number of copies a command is receiving should be sent to BUMED Code 0010.

# Notes & Announcements

## DENTAL CONTINUING EDUCATION COURSES

The following dental continuing education courses will be offered in February 1978:

*National Naval Dental Center, Bethesda, Md.*

Comprehensive dentistry 6-8 Feb 1978  
Fixed partial dentures 27 Feb-1 Mar 1978

*Eleventh Naval District, San Diego, Calif.*

Complete dentures 21-23 Feb 1978

*U.S. Army Institute of Dental Research, Walter Reed Army Medical Center, Washington, D.C.*

Advanced clinical oral pathology 6-9 Feb 1978

*Armed Forces Institute of Pathology, Walter Reed Army Medical Center, Washington, D.C.*

Oral pathology 27 Feb-3 Mar 1978

Requests for courses administered by the Commandant, Eleventh Naval District, should be submitted to: Commandant, Eleventh Naval District (Code 37), San Diego, Calif. 92132. Applications for other dental continuing education courses should be submitted to: Commanding Officer, Naval Health Sciences Education and Training Command (Code 5), National Naval Medical Center, Bethesda, Md. 20014. Applications should arrive six weeks before the course begins.

Cross-country travel and travel from outside the continental U.S. to attend dental continuing education courses generally will not be approved due to funding limitations.

## POSTDOCTORAL ASSOCIATESHIPS AT NAVY RESEARCH ACTIVITIES

Applications are now being accepted for the postdoctoral research associateship programs conducted by the National Research Council on behalf of the Navy Medical Research and Development Command (NMRDC). Awards are made on a competitive basis and are tenable at five Navy facilities:

- Naval Medical Research Institute, Bethesda, Md.
- Naval Aerospace Medical Research Laboratory, Pensacola, Fla.
- Crew Systems Department, Naval Air Development Command, Warminster, Pa.
- Naval Submarine Medical Research Laboratory, Groton, Conn.
- Naval Health Research Center, San Diego, Calif.

Associateships are awarded in the following research areas: experimental medicine, immunology, undersea medicine, aerospace medicine, behavioral sciences, biochemistry, biophysics, environmental stress, micro-

biology, parasitology, virology, biomagnetics, physiology, and radiation biology.

Under the Associateship Program, postdoctoral biomedical engineers and medical, biological, and behavioral scientists participate in biomedical research projects conducted in NMRDC laboratories. The program is a joint effort of the NMRDC and the National Research Council, National Academy of Sciences. The Council screens candidates' records, selects applicants, and approves the scientific merits of the laboratory projects and the credentials of research advisers.

Applications must be submitted by 15 Jan 1978. Supporting documents must be received by 13 Feb 1978. Candidates must hold an M.D., D.D.S., Ph.D. degree or equivalent, and must be research oriented.

For more details on application, specific fields of interest, and a list of required supporting documents, write: Associateship Office (JH 606-E), National Research Council, 2101 Constitution Ave., N.W., Washington, D.C. 20418.

## DR. MAUMENEE RECEIVES NAVY DISTINGUISHED PUBLIC SERVICE AWARD

A. Edward Maumenee, M.D., director of the Wilmer Ophthalmological Institute, Johns Hopkins Hospital, Baltimore, Md., received the Navy Distinguished Public Service Award on 22 Sept 1977. This is the Navy's highest award granted to an individual not employed by the Navy Department.

Dr. Maumenee was honored for his 29 years' service to the Navy as civilian consultant in ophthalmology.

The award, which consists of a medal and a certificate signed by the Secretary of the Navy, was presented by the Navy Surgeon General, VADM Willard P. Arentzen (MC), in a ceremony at the Bureau of Medicine and Surgery, Washington, D.C.

Dr. Maumenee first became associated with the Navy while serving as a naval ophthalmologist aboard a hospital ship during World War II. From 1948 to 1955, as a civilian, he was primary ophthalmology consultant for Naval Hospital Oakland, Calif., a position he has held with the National Naval Medical Center, Bethesda, Md. from 1955 to the present. Since 1963 he has also been civilian consultant for ophthalmology to the Navy Surgeon General.



Dr. Maumenee

As a consultant, Dr. Maumenee has shared with Navy physicians his expertise in all aspects of eye care, including such difficult surgical procedures as transplantation of the cornea and repair of the vitreous.

Dr. Maumenee has held monthly conferences for Navy ophthalmology residents, and has given Navy ophthalmologists access to highly specialized equipment found only at the Wilmer Eye Institute. Through his efforts, he has helped ensure that the most current techniques of eye care are available to Navy patients.

Dr. Maumenee resides in Baltimore with his wife, Irene Hussels, M.D., and their two children.

### DEADLINE FOR 1978 BOOST APPLICANTS

The BOOST (Broadened Opportunity for Officer Selection and Training) Program offers individuals with educationally deprived backgrounds an opportunity to become eligible for selection to the U.S. Naval Academy, or the NROTC Scholarship Program.

The program is available to enlisted personnel and civilians who meet the eligibility requirements announced in BUPERSNOTE 1500 of 12 July 1977.

Applications for the 1978 BOOST Program must be submitted to: Commander, Navy Recruiting Command (Code 314), 4015 Wilson Blvd., Arlington, Va. 22203 no later than 15 Dec 1977 for military members, and no later than 1 Nov 1977 for civilian applicants.

BOOST classes will convene 1 March 1978 at the BOOST School, Naval Training Center, San Diego, Calif.

### MEDICAL RESERVE POLICY BOARD MEETS

RADM David B. Carmichael, MC, USNR-R chaired the first meeting of the Medical Reserve Policy Board held 13-15 July 1977 at BUMED. The Board represents the inactive Naval Reserve components of the Medical Department and advises the Surgeon General in all inactive Reserve programs.

Attending the meeting were medical Reserve flag officers, staff officers from 8 of the 16 Readiness commands, Marine division and wing surgeons, the Construction Forces Brigade medical officer, and the Master Chief Petty Officer of the medical program. Subjects discussed included billets, training, communications, and active-duty problems. A list of recommendations were sent to the Surgeon General for review.

### NEUROLOGICAL SURGERY BOARD TO GIVE EXAM

The American Board of Neurological Surgery will give its next oral examination 12-14 April 1978 in Cincinnati, Ohio. For more information write: Robert B. King, M.D., Secretary, The American Board of Neurological Surgery, 750 E. Adams St., Syracuse, N.Y. 13210.

### EMERGENCY PHYSICIANS ESTABLISH FEDERAL CHAPTER

The American College of Emergency Physicians has organized a government services chapter. The new unit is designed to meet the needs and problems of emergency medicine services in the military and federal environment.

Membership is open to military and federal physicians involved in emergency medicine. For further information write the American College of Emergency Physicians, 3900 Capital City Blvd., Lansing, Mich. 48906 or MAJ G.P. Whelan, MC, USAF, Emergency Department, Malcolm Grow USAF Medical Center, Andrews Air Force Base, Washington, D.C. 20331.

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# Highlights

## NNMC Symposium

# Malignancy of the Oral Cavity

*The first Navy-sponsored symposium on malignancy of the oral cavity, held 2-4 June 1977 at the National Naval Medical Center, drew an international audience of more than 270 civilian and military physicians and a distinguished panel of speakers. Eminent civilian specialists who presented papers and led discussions on therapies included:*

- Paul B. Chretien, M.D., director, Head and Neck Service, National Cancer Institute.
- John M. Loré, M.D., chairman, Department of Otolaryngology, State University of New York [Buffalo].
- Elliot W. Strong, M.D., chief, Head and Neck Service, Memorial Sloan-Kettering Cancer Hospital, New York City.
- Alvin Novack, M.D., chief, Head and Neck Service, Swedish Hospital, Seattle, Wash.
- Donald A. Shumrick, M.D., chairman, Department of Otolaryngology and Maxillofacial Surgery, University of Cincinnati [Ohio] Medical Center.
- C.C. Wang, M.D., director, Radiation Medicine, Massachusetts General Hospital, Boston.

*The symposium was hosted by the NNMC Department of Otolaryngology under the direction of CAPT Hugh O. deFries, MC, USN and CDR Alan D. Kornblut, MC, USNR. For U.S. Navy Medicine, LCDR John Hammerick, MC, USNR prepared the following report of symposium highlights:*

**M**alignancy of the oral cavity involves less than 5% of whole body neoplasms but results in an estimated 24,000 new patients in the United States each year. The most prevalent tumor is the squamous carcinoma, which can be related to heavy smoking or drinking habits. Deaths occur when disease is not detected or not properly brought to therapy.

Members of the medical and dental staffs of the National Naval Medical Center and Walter Reed Army Medical Center joined their civilian counterparts in discussions of all aspects of oral cancer, from basic anatomy and physiology to new methods of treatment.

The clinicians noted that radiation and surgery were equally effective in treating oral cavity malignancies which were detected early. However, radiation therapy alone was considered inadequate treatment

for advanced lesions or for lesions which abut bone; in such situations treatment must often be radical, since cervical or distant metastasis often occurs.

Until recently, combination therapies—usually consisting of 4,500 to 6,000 rad radiation therapy followed by surgery—have been used to treat advanced tumors. Dr. Alvin Novack stressed that such surgery attempts to retain the lower third of the face—mandible, tongue, mucosa, and muscle—as a unit so that speech, swallowing and appearance are preserved. While Drs. John Loré, Donald Shumrick and Elliot Strong indicated that radiation before surgery compromises wound healing, Dr. C.C. Wang pointed out that this objection should be muted by the obvious advantages of the approach, since the technique lessens the possibility of tumor implants or distant metastasis and

helps shrink the tumor. Dr. Wang also said that while radiation therapy after surgery posed no problems for surgeons, it was of considerable concern to radiotherapists, since postoperative tissue fibrosis or altered blood supply may lessen the effectiveness of radiation.

Dr. Strong emphasized that in spite of improvements in surgical techniques, radiation therapy, or other therapeutic modalities and their combinations, the survival rate of patients with advanced cancers of the oral cavity has not significantly improved. Other panelists agreed with this finding, which opened a discussion of more recent therapies.

**Chemotherapy.** Reviewing the progress of chemotherapy in treating oral cavity malignancies, CAPT Elliott Perlin, MC, USN, of the National Naval Medical Center, said that while many drugs have been used to treat squamous carcinomas of the head and neck, such therapy has been aimed primarily at palliating terminal disease and has had only limited temporary success. Methotrexate in doses of 40 mg to 60 mg a week has been used most frequently, but may be inadequate for effective therapy.

Pre-radiation or pre-surgical use of chemotherapy has resulted in significant tumor regression in selected patients with advanced disease, Dr. Perlin reported. The most promising medications include high doses of methotrexate with leukovorin rescue, bleomycin, and cisplatin. However, Dr. Perlin warned that many of these drugs are poorly tolerated by patients, and that the drugs' toxic effects may complicate immune, metabolic or nutritional imbalances that already exist—especially imbalances involving marrow, lungs and kidneys.

Dr. Paul B. Chretien surveyed findings in treating head and neck cancers by immunotherapy. Some

clinicians believe that stimulation of the patient's immune system might improve local control rates of disease and result in greater overall patient survival. The technique uses irradiation or surgery to reduce the tumor or residual tumor cells to microscopic levels, and then stimulates the patient's immune system to further control residual disease. Immune stimulants have included BCG, Levamisole, thymosin and transfer factor.

Cryosurgery is usually used for palliative therapy of head and neck malignancies in selected patients when conventional therapy is no longer effective, reported CDR Serge A. Martinez, MC, USNR, of the Department of Otolaryngology, NNMC. The technique is most applicable for controlling superficial lesions but has also been used to alleviate pain and to restore some normal tissue function. Unfortunately, as stressed by CAPT Hugh deFries, MC, USN, the technique may have only limited application to patients with oral malignancies.

**Rehabilitation.** After treatment of oral cavity malignancies, careful attention must be given to rehabilitating the patient. Especially in non-irradiated patients, Dr. deFries reported, the mandible can be reconstructed using composite homologous or autogenous bone. Use of alloplastic materials is not advocated since exposure of the implant invariably results in its loss. Dr. deFries also said that the tongue can be reconstructed using tissue from varied sites, although in his experience use of the chest or deltopectoral flap is preferred. In some patients, a prosthetic tongue will make it easier to swallow and speak, he said.

Discussing prosthetic support of the patient after resection of oral malignancies, CAPT Gordon E. King, DC, USN, of the National Naval Dental Center, said that proper placement and stabilization of an oral prosthesis requires teamwork by the surgeon and the prosthodontist. Dr. King felt that, whenever possible, the prosthodontist

should examine patients before surgery so a temporary prosthesis could be developed for the immediate postsurgical period. This temporary prosthesis provides the patient with adequate occlusion and enables him to speak and eat relatively normally.

**Complications.** Introducing a discussion of complications of therapy, CDR Alan Kornblut, MC, USNR, said that therapeutic measures may lead to problems more incapacitating than the primary disease process. Dr. Kornblut gave as examples such direct complications of therapy as hemorrhage, infection, poor healing, and cardiopulmonary or renal compromise. In the late convalescent period, complications may result from recurrence of tumor as well as from physiologic dysfunction. Dr. Kornblut said that the most difficult patient to treat was the one who fails to adjust psychologically to rehabilitation and requires intensive supportive care.

Dr. Wang identified several complications of curative radiation: ulcerations, fibrosis, xerostomia, caries, gingivitis and osteonecrosis, among others. Important considerations in the development of such complications are the modality of therapy, a time-dose-fractionation program, size of the radiation portals used, and extent and location of the disease. Management of more serious complications requires the combined skills of the radiotherapist and the surgeon, Dr. Wang said.

In Dr. Wang's experience, the major postradiation complication is osteonecrosis, found in 29% of his patients who received interstitial radium implants and in 17% of patients who received external beam therapies. In a further discussion of this complication, CAPT Raymond E. Tobey, MC, USN and CAPT James F. Kelly, DC, USN reported that at the National Naval Medical Center patients with osteonecrosis undergo surgical sequestrectomies and extractions when indicated, and receive species-specific antibiotics. The patients are then

treated with either 1.2 atmospheres oxygen or 2.0 atmospheres oxygen for two hours each day for 40 days. While preliminary observations indicate that patients do well with such therapy, final results have not yet been defined.

Drs. Tobey and Kelly said that osteonecrosis is the consequence of obliterative endarteritis which produces bony fibrosis and lowers resistance to infection. These changes give rise to dental caries and subsequent irreversible bone infection. Since chronic infection results in reduced partial pressure of tissue or bone oxygen, hyperbaric oxygenation leads to increased tissue oxygen, making ancillary therapeutic measures more effective.

Differentiating between persistent or recurrent tumor and osteonecrosis can be difficult. Panel discussion participants said that after successful therapy the tumor site should be pliable and without ulceration, although some lesions (especially adenocarcinomas) may be slow to respond to treatment. Careful follow-up becomes essential, and a biopsy should be taken of any ulcer that persists more than six to eight weeks following completion of therapy. On occasion, an entire tissue site may have to be surgically resected to define microscopic disease.

In general, symposium participants agreed that the major problem in treating patients with oral cancers still is local control of nodal disease or advanced lesions. Although improved control of local tumors has been noted with combined radiation and chemotherapy or immune stimulations, further therapeutic advances will require greater knowledge of tumor growth cytogenetics. Also needed is greater understanding of the proper duration or timing of treatment so that appropriate chemotherapeutic preparations can be used and immune reconstitution and stimulation achieved. The goal of therapy remains eradication of disease with complete preservation of normal tissue form and function.

# Pars Plana Vitrectomy: An Advance in Management of Severe Ocular Trauma

CDR Howard P. Cupples, MC, USN  
LCOL Paul Whitmore, MC, USA  
LCDR Leonard Parver, MC, USNR

Management of ocular injuries constitutes one of the major problems confronting military ophthalmologists. Conventional surgical approaches to the severely traumatized eye have often proved unsuccessful. One recent report (1) cites a 70% enucleation rate in patients with perforating ocular injury complicated by vitreous loss.

Ocular damage associated with trauma includes corneal and scleral lacerations, hyphema, uveal tissue loss, chamber angle deformation, lens opacification and dislocation, vitreous loss, vitreous hemorrhage, contusion retinal damage, retinal tears or detachment, and intraocular foreign bodies. Secondary complications include infection, chronic inflammation, epithelial ingrowth, intraocular fibrosis, cyclitic membrane formation, vitreous traction, and retinal detachment (1-8).

The introduction of instrumentation and techniques to perform pars plana vitreous surgery provides new capabilities for managing selected cases of ocular trauma. In this paper we will discuss 12 patients treated with pars plana (closed) vitrectomy at the National Naval Medical Center, Bethesda, Md., and Walter Reed Army Medical Center, Washington, D.C., from August to December 1976, because of ocular trauma deemed inoperable by conventional techniques. Ten of the 12 patients had sustained penetrating injuries. Five injuries were associated with nonmagnetic foreign bodies, and one with a magnetic foreign body. Preoperative best-correct-

able visual acuity for the 12 patients varied from light perception to hand movement at two feet. Physical examination on admission revealed cataract formation and vitreous hemorrhage, confirmed by B-scan ultrasonography, in all patients; eight patients had associated retinal detachment.

Vitreous surgery was performed from eight hours to four years after the initial injury.

## METHOD

Preoperative evaluation of the 12 patients included a general ophthalmological examination with particular emphasis on visual acuity, accuracy of light projection, slit lamp examination, and examination of the fundus by indirect ophthalmoscopy. Orbital X-rays were taken and B-scan ultrasonography performed on all patients. Bright flash electroretinogram was performed when needed.

Each patient was taken to the operating room where we performed pars plana (closed) vitrectomy according to our standard procedure: First, corneal wounds were closed with multiple interrupted sutures. A 360° conjunctival periotomy was then made. Traction sutures were placed under the rectus muscles. The sclera was then explored and any wounds were closed with multiple interrupted sutures. Because a posterior vitrectomy was to be performed, partial thickness scleral tunnels were prepared in each quadrant, with the anterior aspect of each tunnel 3 mm posterior to the ora serrata. These "belt loop" tunnels can accommodate a #240 band placed around the eye after the vitrectomy to support the vitreous base and reduce the possibility of later retinal detachment (Figure 1).

A sclerotomy site was prepared 4 mm posterior and parallel to the limbus in the superio-temporal

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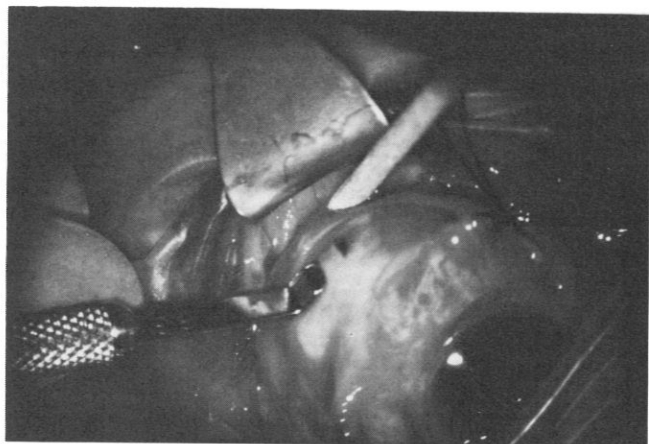


FIGURE 1. "Belt loop" tunnels are used to support the vitreous base and reduce the chance of retinal detachment.

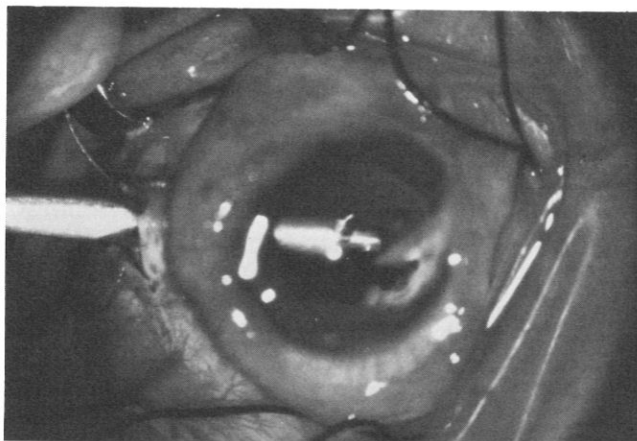


FIGURE 2. The vitrectomy instrument is passed into the pupillary space.

and superio-nasal quadrants. A special sclerotomy knife was used to enter the eye through the sclerotomy site in the superio-temporal quadrant. The vitrectomy instrument, equipped with an overlying fiberoptic sleeve, was introduced into the eye and passed into the pupillary space (Figure 2). The cutting port of the instrument was directed anteriorly, and the involved cataractous lens and vitreous excised a bit at a time. To control bleeding, elevated intraocular pressure was maintained by raising the infusion bottle or applying intraocular wet-field coagulation (9).

Excised tissue was aspirated into the cutting port and later sent to the eye pathology laboratory for cytological and bacteriological examination.

After excising the involved vitreous and lens tissue, we examined the retina and posterior segment looking for retinal detachment and foreign bodies. Any foreign bodies were removed through the superio-nasal sclerotomy site, using foreign body forceps. When the vitrectomy was completed, the vitrectomy instrument was withdrawn from the eye and the sclerotomy site closed with multiple interrupted sutures.

The status of the retina was then assessed. In the eight patients with detached retinas, holes were localized and treated with transscleral cryotherapy and an external buckling procedure if indicated. Cryotherapy was then applied for 360° directly posterior to the ora serrata. An encircling #240 silicone band was placed through the scleral tunnels to create a low buckle, after which sterile air or SF<sub>6</sub> gas was introduced into the eye (Figure 3). The patient was positioned so that the air or gas served to tamponade the retina. Depo-steroids were injected subconjunc-

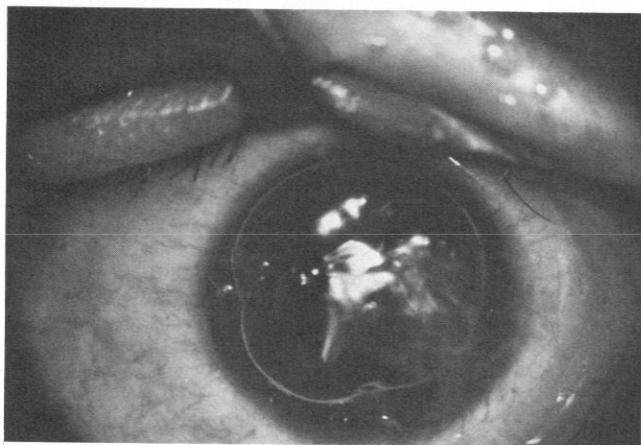


FIGURE 3. Sterile air or SF<sub>6</sub> gas may be introduced into the eye.

tively. Topical antibiotics were applied frequently during the postoperative period, and systemic antibiotics were used as needed.

## RESULTS

As of August 1977, vision has improved in six of the twelve eyes we operated upon, with four eyes showing visual improvement to 20/40 or better. Of the remaining six eyes, four had undergone a technically successful surgical procedure but showed no improvement in visual acuity; the other two eyes were irreparably damaged by their injury and were subsequently enucleated.

## DISCUSSION

Through the technique of pars plana vitrectomy, intraocular opacities can be removed from severely

traumatized eyes to enable the surgeon to search for retinal breaks or detachment, or other tissue damage. Nonmagnetic intravitreal foreign bodies and selected magnetic foreign bodies can be safely removed from the eye through this procedure. Damaged lens, vitreous, and intraocular hemorrhage can be removed to reduce the stimuli which cause intraocular fibrovascular tissue to form, leading to possible traction bands and retinal detachment.

We are encouraged by the preliminary results we have achieved using the pars plana vitrectomy technique. While follow-up to date varies from only six months to twelve months, our results compare favorably with those of Benson and Machemer (10) who reported on vitreous surgery in 41 patients with perforating injuries considered inoperable by conventional surgical techniques. After six months, 32% of the eyes operated upon showed visual improvement, and another 15% of the operations were considered technical successes. In another series of 28 patients, Hutton and colleagues (11) reported a significant visual improvement in 64%.

Although pars plana vitrectomy has been successfully used to treat penetrating and blunt trauma, it is still a major surgical procedure that may be associated with notable intraoperative and postoperative complications. Vitreous surgery should therefore be reserved for ocular injuries associated with a poor prognosis when managed conventionally: for example, corneoscleral lacerations greater than 8 mm, injuries with severe prolapse of intraocular contents, double perforating wounds, retained intraocular foreign bodies, and severe intraocular damage, including vitreous hemorrhage and traumatic cataracts. The relationship between severity of initial ocular damage and the prognosis for ocular salvage is reflected in the incidence of enucleation after penetrating trauma: the enucleation rate varies from 7% after small corneal lacerations to 70% following perforations associated with vitreous loss (1-7,12,13).

For military ophthalmologists, treatment of ocular injuries takes on additional significance when wartime situations are reviewed. The estimated incidence of such injuries ranges from 4% to 15% of all combat casualties (14,15). One of the largest studies of ocular war injuries reported that 66% of all ocular casualties were perforating injuries; of these, 50% required enucleation (15).

At present, vitreous surgery is reserved for patients who have a poor prognosis when managed by conventional means. Patients for whom vitreous surgery should be considered are those with the follow-

ing ocular injuries:

- Large corneal or corneoscleral lacerations with lens damage, vitreous hemorrhage, or extensive vitreous loss.
- Large or reactive nonmagnetic and large magnetic intravitreal foreign bodies associated with probable retinal damage.
- Lens rupture with admixed lens material and vitreous.
- Scleral lacerations or scleral rupture with vitreous loss and vitreous hemorrhage.
- Penetrating injuries with opaque media and retinal detachment.
- Double perforating injuries involving the posterior segment.
- Penetrating injuries complicated by endophthalmitis.
- Scleral rupture or scleral laceration posterior to the ora serrata, with vitreous loss.

The optimum time to perform vitreous surgery has yet to be determined. We were not able to make such a determination after treating the 12 patients described earlier. Vitreous surgeons generally believe the procedure should be done from 3 to 14 days after initial injury, since vitrectomy during initial repair of the wound frequently is associated with uncontrollable hemorrhage at the wound site. Such hemorrhage occurred in one of our patients whose eye was subsequently enucleated, the objective of the surgical procedure not being achieved.

Delaying vitreous surgery several days may permit the posterior cortical vitreous to separate spontaneously from the retina, thereby making surgery less hazardous. Furthermore, many eyes damaged by penetrating trauma must be initially repaired at night under emergency conditions, while vitreous surgery can be more optimally performed if delayed until the regular operating team is available. The delay also permits the surgeon to gain more information from B-scan and electroretinogram evaluation.

Vitreous surgery is usually more complicated if delayed more than two weeks after the injury, since intraocular organization tissue can result from severe traumatic disruption of the globe. Early vitreous surgery enables surgeons to decide upon enucleating a severely traumatized and irreparably damaged eye while the risk from sympathetic ophthalmia is minimal.

## RECOMMENDATIONS

Based on our experience of managing severe ocular trauma, we offer the following recommendations:

1) Ophthalmic surgeons should undertake initial repair of the traumatized eye, using conventional surgical procedures, as soon after the injury as possible.

2) If poor prognostic factors are present, vitreous surgery should be contemplated and, if necessary, the patient transferred to a facility where vitreous surgery can be done.

3) Vitreous surgery and allied techniques should be done within 3 to 14 days of initial injury.

4) Eyes judged to be irreparably damaged following the vitrectomy procedure should be enucleated early while the risk of developing sympathetic ophthalmia is minimal.

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NOTE: A bibliography of 43 references concerned with pars plana vitrectomy is available from: Editor, *U.S. Navy Medicine*, Bureau of Medicine & Surgery (Code 0010), 2300 E St. N.W., Washington, D.C. 20372.

#### DON'T MISS

## Fetal Alcohol Syndrome

The deformities and mental deficiencies that occur in children born to alcoholic mothers may be largely preventable if alcoholism is recognized early in pregnancy and the mother motivated to abstain.

In "The Fetal Alcohol Syndrome: Recent Findings," published in the Spring 1977 issue of *Alcohol Health and Research World*, James Martin reports on several efforts to explore this problem.

At the University of Washington School of Medicine, Seattle, a study of 11 infants born to chronic alcoholic mothers showed prenatal and postnatal growth lag in all the children. The condition was more severe with respect to birth length than birth weight, and the growth deficiency persisted throughout early childhood. Failure to thrive was reported in some patients despite adequate feedings and excellent foster care.

Subsequent studies by the Seattle researchers helped substantiate a pattern of defects common to the syndrome: the growth deficiency described above, small head size with mental subnormality, and facial abnormalities such as a short palpebral fissure.

Because the malformation pattern differs from that found with known nutritional deficiencies, the fetal alcohol syndrome is not believed to be caused by maternal undernutrition resulting from chronic alcoholism. Instead, Martin reports, some researchers believe that alcohol or some toxic metabolite is the most likely causative agent. Symptoms of alcohol withdrawal have been seen in newborn babies, and alcohol has been detected on the breath of these infants and in the amniotic fluid.

Mothers of affected babies often have common characteristics be-

sides heavy alcohol intake: advanced age, low weight, and variables such as minority group status, poor prenatal care, anxiety and stress. Researchers point out that well-controlled studies are required to clarify alcohol's role in fetal disorders. There is no data yet on the quantity of alcohol intake or the duration of drinking necessary to produce fetal alcohol syndrome; nor is there evidence to indicate that social drinking can cause fetal anomalies.

Navy Medical Department members who work with expectant mothers should ensure that these patients are aware of the possible dangers alcoholism poses for unborn children.

For a reprint of James Martin's article on the fetal alcohol syndrome, write: Editor, *U.S. Navy Medicine*, Bureau of Medicine and Surgery (Code 0010), Department of the Navy, 2300 E St. N.W., Washington, D.C. 20372.



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